British aid policy, 1978 to 1989: Business lobbies and donor interests

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BRITISH AID POLICY 1978 TO 1989:
BUSINESS LOBBIES AND DONOR INTERESTS

submitted by *Oliver Morrissey*

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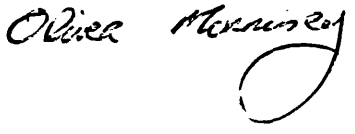

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British Aid Policy 1978-89

Thesis submitted by *Oliver Morrissey*

SUMMARY

The thesis aims to illuminate the influence of the business lobby on British aid policy by examining the arguments of that lobby, especially in respect of demands for tied aid, and assessing the extent to which these have been reflected in trends in the UK aid budget from 1978 to 1989. The central point is that the benefits to business are determined largely by the impact of aid, the extent to which British exports are aid-financed and the distribution of such exports across industries and firms. Much of the thesis concentrates on estimating the impact of different types of aid, which are shown to be significant for particular industries and firms but not necessarily for the economy. In terms of exports supported, the Aid and Trade Provision generates the greatest benefit to the UK, followed by contributions to multilateral aid agencies. Bilateral aid, even if tied, generates a relatively lower benefit. Business lobbies often emphasise the employment potential of tied aid but we argue this is unlikely to be significant.

The commercial benefits from aid, which can be related directly to the business lobby, provide only a first approximation of the effects of aid. The development arguments for aid condemn tying as being against the interests of aid recipients; it distorts prices and resource allocation, limits choice and thereby fails to maximise global economic welfare. The thesis argues that if one looks behind the commercial benefits of tied aid to try and identify the net economic effects, on the donor and globally, the case for tying is very weak. However, tying is prevalent amongst all major donors, which we explain as due to internal political pressures, as demonstrated in the UK case, and a desire to match the practices of other donors. We note that the real value of British aid fell considerably while Mrs. Thatcher was Prime Minister; while tied bilateral aid bore the brunt of the cuts, large exporters were somewhat protected due to the increased availability of Aid and Trade Provision funds to them. The major influence on the UK aid budget over 1978-89 was the Conservative government's commitment to cut public expenditure; within this constraint, the influential large companies derived commercial benefits.

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ACKNOWLEDGEMENTS

A thesis in political economy can be of many forms: developing a technique; formally testing a theory; utilising a new data set; using economic analysis to answer a preconceived question, etc. This thesis is of the latter form and I wish to thank Brian Smith and Edward Horesh for suggesting, and obtaining a research grant for, the original question: in what way did British aid policy change during Mrs. Thatcher's reign as Prime Minister. I also wish to thank David Collard for being a helpful supervisor on this and other projects while I was at Bath University. Since coming to Nottingham University, David Greenaway has been a source of motivation and inspiration for which I am grateful.

Various parts of this thesis have already been published, in journals or as discussion papers, or presented at Conferences. Chapters 6 and 7 expand and develop the material in Morrissey (1989a and 1990a); Chapter 8 has had two airings as Morrissey (1989b and 1990c); Chapter 4 updates an earlier version published as Morrissey (1990b) and aspects of Chapter 9 were presented in embryonic form in Morrissey (1989c and 1989d). Other issues, more tangential to the thesis itself, were presented in Morrissey (1990d and 1991). I am grateful to a number of editors, annonymous referees and Conference participants for helpful comments over the last few years. Paul Mosley, Adrian Hewitt, John Toye and Mo Malek deserve to be singled out among these.

It will be apparent to the reader that I have also benefitted from discussions with a number of businessmen, representatives of business interest groups, and members of the ODA and DTI. I have not always agreed with them, but they have been a source of ideas, information and inspiration in a flow that has been, I believe, two-way (see Confederation of British Industry, 1990). I must single out from among these Verity Mitchell of Midland Montagu (who was seconded to the CBI Aid Working Group) and Ben Pape (Chairman of that Working Group).

Last, but by no means least, I thank the British Council and Leverhulme Trust who, between them, financed me for some five years.

NOTATION

1. General Notation

Some standard notation is adopted throughout:

scalars	*italic* (normally lower case),
vectors	**bold** lower case,
matrices	**BOLD** upper case (diagonal matrices are in ***ITALICS***),
parameters	are generally in letters of the greek alphabet and follow the above conventions for scalars, vectors and matrices.

The list of symbols below (in scalar form where it exists) gives the meaning normally attached throughout the thesis. Since the number of letters in the alphabet is less than the possible uses, some letters are occassionally used with a meaning other than that given. We endevour to keep this to a minimum, they are always emphasised at the time and the usage is obvious by the context. Duplication is most frequently necessary in the case of subscripts and is normally only employed for a single equation, or group of equations, which are presented on one occassion only.

2. Symbols (Roman)

a ... value of aid, for different types of aid (α, β, μ, τ).

c ... consumption (consumer demand for industry output).

d ... final demands (for industry output).

e ... exports.

f ... primary inputs.

g ... government spending (demand for industry output).

h ... household income, labour inputs.

H ... Household income multiplier (calculated from IO data).

i,j ... subscripts; generally refer to the i^{th} element of a row vector or i^{th} row of a matrix; j^{th} element of a column vector or j^{th} column of a matrix.

$\mathbf{I}$ ... Always and uniquely the Identity Matrix.

k ... contract value of ATP awards.

l ... generally an interdependence coefficient - an element (l_{ij}) of the Leontief inverse; occassionally a time-lag when used as a subscript.

L ... Always and uniquely the Leontief Inverse.

m ... imports (usually as a primary input).

n ... generally the number of elements in a vector, summation, etc.

N ... the Aggregation Matrix.

O ... Output multiplier (calculated from IO data) for each industry.

q ... industry output: q_i the output of the i^{th} industry; q_j the total value of inputs to the j^{th} industry; q_a is industry output required for x_a.

Q ... aggregate output multipliers (derived from impact analysis), per unit aid (Q_a), aided export (Q_{xa}) and for impact on industry (Q_i)

q ... vector of industry outputs.

r ... Cournot reaction function, $r_i(x_j)$

t ... generally taxes (on intermediate inputs); designates time if used as a subscript, except for ϕ_t = tax input coefficient.

v ... investment (demand for industry output).

w ... industry employment; w_a is employment due to x_a.

W ... aggregate employment multipliers, per unit aid (W_a) and aided exports (W_{xa}); W_{qi} = industry employment per £1m of output.

x ... aided exports: the value of industry exports directly due to aid, designated x_a for each type of aid; x_c is Cournot output quantity.

z ... inter-industry trade: z_{ij} the output of industry i that is purchased as an input by industry j.

Z ... the IO matrix of inter-industry transactions.

3. Symbols (Greek)

α ... ATP, normally used as a subscript.

β ... bilateral aid, normally used as a subscript.

χ ... degree of competitiveness (for MAA contracts).

Δ ... change in a variable

∂ ... partial derivative

ϕ ... input coefficients, with relevant subscript (m, t, h, π).

Φ ... matrix of input coefficients.

γ ... proportion of potential x_a accruing in a given year.

η ... labour share in total industry inputs.

λ ... degree of leakage from tied aid; share of local costs.

μ ... multilateral aid, normally used as a subscript.

π ... profits (as a component of primary inputs).

θ ... technical IO coefficients (z_{ij}/q_j).

Θ ... matrix of technical coefficients.

ρ ... export ratio (x_d/a), with subscripts for type of aid (α, β, μ, τ).

σ ... level of export subsidy (implicit in tied aid or mixed credit).

Σ ... summation sign.

τ ... degree of tying of aid; tied bilateral aid, normally used as a subscript.

Ω ... Employment multiplier (calculated from IO data).

4. Abbreviations

ADB	Asian Development Bank
AfDB	African Development Bank
ATP	Aid and Trade Provision
BCB	British Consultants Bureau
BOTB	British Overseas Trade Board
BRE	British Rail Engineering
CBI	Confederation of British Industry
CIA	Chemical Industries Association
CSO	Central Statistics Office
DAC	Development Assistance Committee (of the OECD); generally used as an acronym for the developed, donor, economies
DTI	Department of Trade and Industry
EC	European Community
ECGD	Export Credit Guarantee Department
EDF	European Development Fund
EGCI	Export Group for the Constructional Industries
EMENA	Europe, Middle East and North Africa
FAC	Foreign Affairs Cimmittee (of the Houses of Parliament)
FCO	Foreign and Commonwealth Office
GATT	General Agreement on Trade and Tariffs
GEC	General Electric Company

GIO	Aggregate (28 Industry) IO Matrix
GNP	Gross National Product (National Income)
GOC	'government opportunity cost'
HSPE	Hawker Siddeley Power Engineering Ltd.
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IGBA	Independent Group on British Aid
IMF	International Monetary Fund
IO	Input-Output
JBE	John Brown Engineering Ltd.
LA&C	Latin America and Carribean
LDC	Less Developed Country
MAA	Multilateral Aid Agency
NGO	Non-governmental organisation (generally aid agency)
NEI	Northern Engineering Industries
ODA	Overseas Development Administration
OECD	Organisation for Economic Cooperation and Development
OPB	Overseas Projects Board
R&D	Research and Development
SALs	Structural Adjustment Loans
SCAT	Sub-committee on Aid and Trade
SIC	Standard Industrial Classification
SSA	Sub-Saharan Africa
STP	Strategic Trade Policy
TBA	Tied Bilateral Aid
TCA	Technical Cooperation and Assistance
UK	United Kingdom
UNDP	United Nations Development Programme
VOC	'investment opportunity cost'
WPAT	Working Party on Aid and Trade

Abbreviations for industries in the IO model are in Table 5.1; see also Table 8.1.

CHAPTER 1: INTRODUCTION

The election of a Conservative majority with Mrs. Thatcher as Prime Minister in 1979 heralded many changes in British society and Government policy. The dominant economic ideology became that of *laisser faire*; free markets in which business can be competitive, efficient and profitable and, in principle, minimal State intervention. It is not our intention to consider whether, in general, the Conservatives succeeded in imposing this ideology and whether the predicted benefits did indeed accrue. Rather, we focus on a single area of policy and ask why did the British aid budget acquire the form it had over the decade 1979-89. Thus we need to know how aid policy was determined and what changes, in the process and outcomes, occured over that decade.

Most people would equate aid with help, and are likely to accept the strict definition of official development assistance (aid) as "flows to developing countries and multilateral institutions ... *provided by official agencies* ... administered with the *promotion of the economic development and welfare of developing countries as its main objective*, and it is concessional in character." (Development Assistance Committee, DAC, 1985:171, original emphasis). We thus confine attention to official aid, that granted by the governments of donor (DAC) economies, and paid for by taxpayers. The aid activities of private charities, such as Oxfam or Trocaire, or of non-governmental organisations in less developed countries (LDCs) are not considered since they comprise only a minor part of government policy (although they may influence and be influenced by it).

Those who contribute to private charities are giving money without any expectation of a material return, but this is less clearly so in the case of public charity. Taxpayers may believe that genuine aid "should be a unilateral flow of resources given without expecting a quid pro quo; its only objective should be the promotion of development in recipient countries." (Berlage and Vanderlee, 1978:351). This provides one explanation for aid: taxpayers desire some degree of international redistribution so that, in a median voter model of public choice, aid will be a component of public expenditure. The objective of promoting development can be

defined, and achieved, in different ways which have implications for the form of aid. There is first the development case, whereby the purpose of aid is seen to be the alleviation of poverty and increasing the welfare of the poorest people in the poorest countries. Alternatively, there are what we will term economic cases for aid which essentially see the purpose of aid as being to assist economic growth in LDCs. These distinctions will be made clear early in the thesis.

Aid is one element in public policy and the financial costs are borne out of public expenditure. It follows that decisions about aid are taken within a political process and are affected by the influence of, and dialogue between, the participants in that process. While a median voter approach may explain why aid will be an element of public expenditure, we need to consider the activities of interest groups and the motivations of bureaux and the Government if we wish to explain the details of aid policy. Those who derive the greatest benefit from aid will try hardest to influence government policy; while the median voter may feel good about giving aid, this will not be as powerful an incentive (for lobbying the Government) as the substantial business and profits that companies can derive from contracts in LDCs. Although emergency aid, such as disaster relief, tends to receive the highest profile in the media (which may satisfy the taxpayer) it is a small fraction of total aid. The greater part of aid, especially that directed by economic rather than purely development arguments, requires the recipient LDC to import goods, and often personnel, which can be a major source of business for some exporters in donor economies.

The business lobby or at least a subset of it, those who try to influence the form of British aid so that it meets the commercial interests of exporters, have a vested interest in the aid budget. While the public choice motive for aid may well be the promotion of development and the alleviation of poverty in LDCs, the business lobby stands to gain if the products financed out of British aid are provided by UK exporters. The ability to generate exports will depend on the form aid takes, for example whether it finances a capital goods project or the provision of primary health care in rural areas, which is discussed in Section 1.1 below. In general, however, business interests will favour and lobby for *tied aid*, ie. aid that is granted subject to the condition that all or most of the money is used to purchase

goods, required for the project, from donor exporters. A central argument of this thesis is that there is strong pressure for tying from business lobbies and certain government departments, but that tying in general is against the interests of recipients and is not necessarily in the economic interests of donors. Much of this thesis concerns a critique of the case for tied aid by examining the arguments and evaluating them, in terms of the donor benefits, against evidence for the UK.

Much of the motivation for this thesis, and some of the raw data for the analysis, came from May, Schumacher and Malek (1989), *Overseas Aid: The Impact on Britain and Germany*. This was an extensive quantitative study of the *impact of aid* on the UK, ie. the commercial value to the economy of the exports of UK firms that were attributable to aid finance, over the period 1978 to 1984, and a comparison with the experience of Germany. The approach adopted to measure the impact of aid on a donor economy was to estimate the value of exports attributable to aid, hereafter termed *aided exports*, and quantify the value of the economic activity required to produce these, in terms of output, employment, and trade. May, Schumacher and Malek (1989) provide a wealth of data on the value of the impact, on aggregate and in terms of the distribution of benefits across industries and regions, in addition to microdata from a survey of firms.

While the quantitative analysis is extensive, including an attempt to evaluate if the geographical allocation of British aid has a significant effect on the pattern of UK exports, May, Schumacher and Malek (1989) fail to provide a clear underlying theoretical framework within which to assess why the impact of aid is worth measuring and, in particular, how it relates to British aid policy. The basic objective of this thesis is to provide such a theoretical framework and to re-estimate and reinterpret the impact of British aid in the light of it. There are two strands to the framework. First, we demonstrate that the importance of impact derives from the arguments for tied aid, whereby a donor is seen as justified in conducting its aid policy so as to ensure an economic benefit for itself. This connection is most evident in the way in which the business lobby uses measures of impact to support claims for tied aid. Second, we examine the evolution of British aid policy over the decade from 1978 to 1989, paying particular attention to the trends in tied aid and to

the ways in which business lobbies have tried to influence policy, with an evaluation of the extent to which they have been successful. While concerned with many aspects of policy we will tend to confine attention to the aid budget.

We will argue that measures of impact have been presented by some, notably business lobbies, as representing the economic benefits a donor can derive from tied aid. We hope to demonstrate both that impact is not a measure of economic benefit and that evidence on impact does not, in itself, support arguments for tied aid. The approach adopted is to present the arguments *for* tied aid and then to evaluate these in terms of the impact of different types of aid. The underlying argument is that tied aid can only be justified on economic grounds if it confers a larger net global welfare gain than an equivalent amount of untied aid. Impact is only a first, gross, approximation of the economic benefits to donors; even if one did find that tied aid had a greater impact than untied aid, one could not conclude that tying was of greater net benefit even to the donor.

The remainder of this chapter outlines some general limits on the scope of the analysis and the structure of the thesis. Section 1.1 reviews the most important of the forms that aid can take, indicating which of these will receive attention in subsequent chapters and paying particular attention to the potential for a type of aid to generate UK exports. Section 1.2 outlines the issues involved in estimating the net impact of aid on a donor economy. Impact measures the gross effects of aid, the value of aided exports and the economic activity generated by them. Since these gross gains accrue to firms and industries we term them *commercial benefits*. To arrive at net benefits to the economy one must account for the effects on export trends, eg. does tied aid displace commercial exports, and the opportunity costs, could money spent on aid have yielded a higher benefit if allocated to some other public expenditure heading. The *net economic benefits* should account for the wider effects of tying on trade and for the facts that aid is only one of alternative forms of government expenditure and, when tied, is effectively a transfer from taxpayers to exporters. Finally, since aid is intended to promote growth and/or development, one would also wish to consider the *net welfare effect* on recipients and donors. We concentrate on gross commercial impact, as being what we

measure directly, but will address the other issues. The structure of the thesis and an outline of each chapter is provided in Section 1.3 which concludes this chapter.

1.1. The Different Forms of Aid

Aid can take different forms and a number of distinctions can be made. The principal distinction, for our purposes, is between tied and untied aid. Tying means that aid is granted subject to the condition that the recipient spend some or all of the funds on goods produced by donor companies, and/or that donor personnel (consultants, trainers, managers, etc.) are employed to implement or assist in the implementation of the aid disbursement. It is the tying of aid to goods that is of greatest importance, in terms of generating a return to the donor and in terms of our thesis. While tying to personnel can generate a return to the donor, this is of less significance in commercial terms. Often, the personnel may be the aid, for example the provision of nurses or teachers, in which case the connotation of tying is inappropriate. The point is that tying *de facto* limits the recipient's choice.

A second important distinction is whether the donor is a government or an aid agency and, in addition, what type of agency, as this will tend to determine the nature of the conditions, such as tying, attached to the aid. Our principle concern being with tied UK aid, we concentrate attention on bilateral, or government (donor) to government (recipient) aid, which accounted for almost 75 per cent of official development assistance in 1985 (Todaro, 1989:482). We will also consider official flows from Multilateral Aid Agencies (MAAs) such as the World Bank, the United Nations Development Programme (UNDP), the European Community's Development Fund (EDF) and regional development banks (see Chapters 4 and 7).

A further distinction is that between project and programme aid, the former being allocated for a particular purpose or to a particular sector (eg. to build a power station or to finance electrification schemes) while the latter is given for more general uses, such as balance of payments support. By its nature, because a specific product or set of products is defined by the use, project aid is the best suited to tying and, generally, it is on this type of aid that we focus. However, programme aid is very important and the distinction between the two is not always clear; if recipients have discretion over use, then programme aid may be allocated to sectors,

or if the recipient can substitute resources then programme aid may release funds to invest in projects. Also, donors can impose conditions that effectively tie part of programme aid, eg. by insisting that balance of payments support is used to defray export credits of the donor.

There are a number of types of aid to which little attention is paid. Foremost of these is technical co-operation and assistance (TCA) whereby the donor provides expertise and training with the basic aim of education, ie. investment in recipient's human capital. While such aid may confer commercial benefits (donor labour is employed and the recipient may acquire a taste for donor technology) it is frequently regarded as quality aid which is relatively good in promoting the development interests of recipients. However, it is very difficult to evaluate the effectiveness of TCA and, while the record is promising in terms of projects meeting their objectives, many projects are failures (see Cassen, 1986, Chapter 6). Another type of aid which we omit is food aid; while the origin of food aid was to disburse agricultural surpluses, so that it was of commercial benefit to donors, the impact on donors is inextricably linked with agricultural policy and the net economic effect is often negative (see Wyse, 1983:12-14, for a discussion in respect of Canada). Furthermore, while the objective of feeding the hungry is appealing, the net effect may be counter-productive depending on the effects on incentives and suppply response of LDC farmers (see Singer *et al*, 1987). Finally, we do not consider emergency aid of any form, both because it is unpredictable and, more importantly, because it is not a clear part of the policy-making process.

The Aid and Trade Provision, introduced in 1978 and expanded in the 1980s, is a peculiar form of aid, being a mixed credit. We term it peculiar because mixed credits are granted to commercial exporters seeking contracts in LDCs, and the aid element is effectively an export subsidy to the company (although given to the LDC government) worth a certain percentage of the contract value. Being so overtly commercial and tied, this form of aid receives particular attention. It is especially relevant because it is a direct support for exports with high commercial benefits relative to the initial aid expenditure; the objective of using aid to maximise the net economic benefit to the donor should most effectively be met through mixed

credits. If it can be shown that mixed credits may not increase the net welfare of donors, and are even less likely to increase net global welfare, it follows that the economic arguments for tying are very weak. We hope to show that the case for tying is indeed weak, and advocate a more development oriented aid policy.

1.2. Donor Benefits from Aid

There are four elements of donor economic benefit. First is the direct benefit, the value of aided exports. Second, there are indirect benefits due to the economic activity required to meet these exports. These two combined constitute the gross commercial benefit. Third is whether aid is trade creating; do aided exports merely substitute for exports that would otherwise have been won or are they additional and do they in turn generate future exports not supported by aid. This will determine the net commercial benefit, a first approximation of the net economic benefit. Fourth, whether tied aid constitutes a net economic gain to the donor depends on whether there are displacement costs, would the resources devoted to aided exports have otherwise been productively used, or opportunity costs, could the resources devoted to aid have been more productive in an alternative use. The last element is difficult to deal with in any detail and any rigorous analysis would require heroic assumptions to permit inferences regarding the net welfare effect. To evaluate the effect on global welfare, one must consider the effects on recipients; we address this point but admit that it is beyond the scope of this thesis.

It is the aided exports, not aid itself, which impact on the donor economy; the fundamental determinant of impact is the ratio of aided exports to initial aid (termed here the export ratio). This *direct benefit* differs between types of aid. The most important distinction is between bilateral aid, some portion of which can be tied, and multilateral aid, which is generally perceived as untied. Fully tied aid will *prima facie* generate exports of equivalent value but tends to include an allowance for local costs so that the export ratio is less than one. In contrast, multilateral agencies tend to operate a *juste retour* principle whereby donors can expect to receive agency contracts in rough proportion to their contributions. Although major contributors tend to receive a lower share of contracts than their share of contributions, the export ratio can exceed one because the agencies boost their

funds by borrowing on international capital markets, hence contracts exceed contributions. This leads to the apparently counter-intuitive result that multilateral aid is more effective at generating exports than tied bilateral aid, ie. that it has a greater direct benefit. In the case of bilateral aid, the direct benefits will generally be greater the higher the level of tying (since the export ratio is higher).

Aided exports will generate *indirect benefits* through increased economic activity. Exports represent the output of, and revenue to, a particular industry. In order to produce these goods, that industry must purchase inputs from other industries, the value of which should also be included as part of the impact. To meet the increased demand for their products or services, the other industries will also demand inputs, and so on. The value of this *output multiplier* can be calculated (using Input-Output analysis) so as to measure the total production required throughout the economy to meet a given volume of export demand. Industries differ in the share of their inputs coming from other domestic industries; the output multiplier, and indirect benefits, increases as the share of other industries' output in total inputs increases and therefore depends on the nature of the industries winning aided exports.

The direct and indirect benefits measure the impact of aid, which is estimated retrospectively for a particular year and represents that part of total economic activity in that year which can be attributed to demand due to aid. Impact, like the Input-Output method in general, tends to emphasise gross transactions. There is no inherent claim that aided exports *created* output or employment (although, as we will show, many comentators implicitly and incorrectly make such claims), nor are there normally any assumptions regarding the level of economic activity had there been no, or fewer, aided exports. This begs two questions: were aided exports trade creating and did they displace domestic activity? In other words, what inferences can we draw regarding the net economic effects of aid?

Aid is not fully trade creating if there are *substitution effects*, that is, if the aid is used to finance goods which would otherwise have been purchased from that donor. These effects are more likely if aid is tied and granted to a relatively large country with trading ties to the donor; they are least likely to be significant in the

case of multilateral aid (since multilateral agencies award contracts subject to international competition). The essential point is the existence of trading ties; when untied aid is granted to a trading partner there is an expectation, if not an underlying obligation, that the money is spent on donor goods. However, given competition between major donors and the evolution of world trade, traditional ties are weakening and while tied aid may not create exports its absence may lose market share. In certain respects tying is an instrument of export protection, and the presumption is that substitution effects will be slight.

On the other hand, aided exports facilitate market penetration and may generate a *radiation effect* (Jepma and Quist, 1986). Aid granted to one country generates exports which give donor firms an opportunity to generate goodwill; if successful, the firm may win subsequent unaided orders in that or neighbouring countries. Substitution and radiation effects act in opposing directions and tend to be affected by the same factors in the same direction; trading ties and economic buoyancy in the recipient economy enhance both effects. It is not possible to generalise on the relative magnitudes but, given the level of donor export competition and the importance of aid in maintaining market share, neither should be over-emphasised. Since there is competition within multilateral agencies, the substitution effect is likely to be less and, since the most internationally competitive firms are most likely to win orders, the radiation effects should be enhanced. This is yet another reason why multilateral aid may confer greater benefits than bilateral aid.

Even if aid is trade creating, aided exports will not be additional to economic output if, in their absence, the resources employed would have been used domestically or to produce other exports. Theoretically, this *displacement effect* is only significant on aggregate if the economy is operating at near capacity so that, not only is a firm unable to meet the exports without sacrificing some other output but also, the demand has to be met by foreign firms. Displacement counts only if output is lost to the economy, not if output is produced by one firm rather than another. In general, the scope for increased productivity, such as overtime, will mitigate any output displacement. There may be displacement effects in specific industries facing capacity constraints but the economic importance is questionable; one needs to

show that exports are somehow less beneficial than domestic goods which would otherwise have been produced. The concept of displacement is closely related to that of *opportunity costs*; resources employed in one use, such as aided exports, are not avaliable for other uses, such as production for domestic demand. There is said to be an opportunity cost if alternative uses could be more productive; there is no opportunity cost if existing uses are the best, or if resources would otherwise have been unemployed. The opportunity cost approach to measuring the benefits of aid starts from the implicit assumption that aid itself and aided exports represent resources which are not available for domestic use, and asks if these could have been better employed.

Evaluating opportunity costs depends on the implicit maximand. For example, the implied opportunity cost of tied aid will differ depending on whether the objective attached to the amount of public expenditure is to maximise exports, maximise donor welfare or maximise the development gains to recipients. It is our contention that the maximand is chosen in a political process, which interested parties will try to influence, and one must investigate this process to identify, in a sense, what alternative opportunities should be costed. The issue is further complicated by the fact that policy-makers may be satisficers not maximisers, so that an overall policy, such as the aid budget, will consist of individual parts each directed at specific, and often conflicting, objectives. To understand the why aid takes the forms it does, one must understand the process of aid policy-making. In strict economic terms the maximand for assessing opportunity costs should be the net effect on global welfare; we will contend, although we do not demonstrate the issue formally, that tying has a negative effect on global welfare.

1.3. Plan of the Thesis

Chapter 2 outlines the arguments for aid as an instrument to promote economic growth and development in LDCs, and demonstrates that differing objectives suggest different forms of aid. A distinction is drawn between the moral case for aid, which tends to relate closely to issues of redistributive justice, and economic arguments, which are based largely on perceived structural deficiencies in LDC economies. The former suggest that aid should be targeted on poverty alleviation while the latter supports project aid and programme aid directed at altering economic

policy in LDCs. We will argue that tied aid is less likely to meet the interests of recipients than untied aid. More generally, we will argue that aid works, or fails, in complex ways and the existence of development and economic objectives can justify granting different forms of aid.

Chapter 3 addresses the measurement of the benefit of aid to donors, with particular emphasis on those arguments which appear to justify tying, and shows that measures of impact only cover, at best, the gross commercial benefit. A wide range of costs and other effects have to be taken into account, some of which are actually greater under tying, to arrive at an indication of the net benefit. We outline a range of arguments that appear to support tying and hope to demonstrate that even under these favourable arguments quite restrictive conditions must be met before it is clear that tied aid will confer a greater net benefit, to the donor, than untied aid. We will argue that many of the net effects are largely independent of the form of aid so that gross impact (the easiest effect to measure) is a reasonable first approximation from which to infer the ranking of types of aid in terms of net economic benefit. We also try to identify those net effects most clearly related to the form of aid, especially its tying status, which receive particular attention in later chapters. While the empirical emphasis of the thesis is on measuring impact, we will try to account for other important economic effects.

One particular type of argument which receives emphasis is the strategic criteria for export subsidies, which can be applied to tied aid and the Aid and Trade Provision (ATP). This approach stems from game theory analysis of imperfect competition, in particular the concept of strategic trade policy. The argument states that if the global market meets certain conditions a donor can increase global welfare by granting a subsidy to exporters in that particular market. These conditions, which we term strategic criteria, are restrictive and include that the global market is a Cournot oligopoly with very few firms, all in donor economies and earning monopoly rents, high barriers to entry, high technology and Research and Development (R&D) content and, preferably, economies of scale. The case for ATP rests on whether the firms benefiting are in markets which exhibit these strategic criteria, an issue addressed in Chapters 8 and 9.

Its value as a first approximation to the net benefit of forms of aid is one reason why we emphasise impact. A second is that measures of impact are extensively employed by business lobbies to argue for tied aid on the basis that it generates greater commercial benefits, so that the donor derives greater benefits than under untied aid. In Chapter 4 we outline the process in which pressure groups try to influence British aid policy. On one side, and of most relevance to us, is the business lobby which essentially adopts the arguments of Chapter 3 in lobbying for a greater link between aid and the promotion of exports. They are in favour of what we will term a *commercially oriented* aid policy. On the other side are those who argue that aid should be granted to further the interests of recipients, following broadly the arguments outlined in Chapter 2, whom we term collectively the development lobby. They are in favour of a *development oriented* aid policy. There are clear conflicts in the aid policy advocated by each; in between lies the Government which, in the form of Departments and Ministers, has a variety of policy objectives and, in the form of the Cabinet, ultimately decides on the orientation of aid policy.

The latter parts of Chapter 4 examine the trends in British aid policy over the period 1978 to 1989, with a view to assessing the influence of the competing lobbies. The implicit methodology is, having distinguished the implications of each competing lobby - commercial, development and political (Government) - for the form of aid policy, to infer the relative influence of each on the basis of the observed aid budget and the changes introduced. Special attention is given to ATP as the most commercially oriented component of the aid budget. The overall trends in the composition of aid, according to types of aid, the degree of tying, the nature of the projects financed and its geographical allocation, are also examined. Finally, some data on other donors are presented both to provide a comparison with the UK and because the practices of other donors will influence UK policy.

Having set the stage, so to speak, by presenting the economic arguments for tied aid and placing them within a policy-making environment, the Input-Output (IO) method used to measure impact is presented in Chapter 5. Following a simple formal representation of how aid impacts on the donor economy, the elementary IO

representation of an economy is given and the basic equation for measuring impact derived. Some extensions to this framework are then given, notably the calculation of output, income and employment multipliers which can be used to rank industries according to relative impact potential, ie, the extent of their interdependence with other industries. The data on which our estimates are based are then discussed before presenting, in simple equation form, the method used. The Chapter concludes with a brief consideration of some of the limitations of the IO method.

The results of applying the IO method of impact analysis are presented and discussed in Chapters 6 to 9, which each address different aspects of aid policy. Chapter 6 is devoted to tied bilateral aid and begins with a discussion of the direct benefits which distinguishes the views of, and benefits to, consultants, contractors and manufacturers. The results are discussed in terms of the overall impact on the economy and then according to the distribution of benefits by industrial groups, such as engineering or chemicals. While the commercial benefits are not great relative to the aggregate economy they can be significant for particular industries and our data permit an examination of the distribution of impact across 24 industries which account for almost all aided exports. We demonstrate that the benefits are highly concentrated and extend the analysis by relating aided exports to the overall export performance of these industries, which permits some inferences on the net benefits from tying. We also show how the method can easily be applied to measuring the impact from a particular order (volume of aided exports).

Chapter 7 conducts a similar exercise in respect of multilateral aid. Britain contributes to most of the major MAAs, notably the World Bank, UNDP and EDF, and this accounts for the share of multilateral aid in the aid budget. These agencies finance numerous projects in LDCs for which firms in contributing countries can tender (subject to varying restrictions). We outline the argument of *juste retour* which suggests that international tenders for MAA contracts are not as competitive as often claimed. However, the UK tends to do well in tendering such that its share in, and the value of, contracts often exceeds contributions, suggesting that the successful UK firms are relatively internationally competitive. The impact of multilateral aid is presented, compared with tied bilateral aid and shown to be

greater in absolute and relative terms. Finally, the distribution of the impact of multilateral aid by industry is examined and related to export performance.

The analysis of Chapters 6 and 7 indicate that multilateral aid, which is essentially untied, has a greater impact than tied bilateral aid, and there is some evidence that the industries winning MAA contracts tende to be internationally more competitive than those winning tied bilateral aid contracts. This suggests that the impact of tied aid is not, in general, any greater than that of untied (multilateral) aid. This comparison is important in showing that the objectives of commercially oriented aid do not favour tied aid over contributions to MAAs. If it is held that multilateral aid in general is of greater benefit to LDCs than tied bilateral aid, the case for tying is severely weakened. If untied bilateral aid is generally given to meet the development objectives of aid, the question can become what form of aid will best meet the commercial objectives. Tied bilateral aid is not favoured over multilateral aid but we must consider the case of mixed credits.

Using the method of Chapter 5 and a specific data set, Chapter 8 presents a detailed evaluation of the impact of ATP. This can be treated as the flagship for the commercial objectives of aid and, as an export subsidy, is akin to the ultimate in tying, in the sense that the return on tying (the export ratio) is well in excess of unity, and explicitly links aid to exports. Since the gross impact of ATP, relative to initial aid, is far higher than for other types of aid, it is especially relevant to try and assess the net benefits. While we cannot claim to rigorously complete this task, our analysis suggests that the net global benefit of ATP could well be negative. If the objective is, as it should be, to maximise the net global benefit from aid, mixed credits are not favoured.

The commercial benefits of ATP are considerable and highly concentrated in a few large companies and there is strong pressure from the business lobby to increase the use of mixed credits. While the administrative and policy trends of ATP were considered in Chapter 4, the arguments for mixed credits are examined against some evidence in Chapter 8. We reiterate that the strongest business argument arises from demands that the UK match other donors, and outline the international

use of mixed credits. As stressed in Chapter 3, the strongest economic justification for ATP will arise if the firms which benefit can be shown to meet strategic criteria. Evidence on the impact of ATP is presented in some detail and we then examine if these criteria are met. We conclude by observing that the strategic criteria are not obviously met and that ATP has been of apparently little development benefit.

In Chapter 9 we bring the evidence on the impact of various forms of aid together and try to infer the net economic benefit, to the donor, associated with each. The specific objective is to bring together the arguments and evidence of the previous chapters to address the question of whether tied aid is justified. Thus we ask what the objectives of tying are, and then try to evaluate if tying is necessary or sufficient to meet these (commercial) objectives. The basic argument is that tying is not generally necessary to achieve commercial benefits such that, once development objectives are accounted for, the case for tying is very weak. The chapter begins with an estimate of the impact of the UK aid budget in 1986, taken as a base year, and this is compared with estimates of the impact of alternative aid policies (one more commercially oriented, the other development oriented). We then attempt to evaluate the opportunity costs of aid by comparing the impact of aid with that of alternative forms of government expenditure, and address the specific issue of the employment-creating potential of tied aid (arguing that it is unlikely to be great, contrary to the claims of business lobbies). The latter part of the chapter tries to evaluate the importance of aid in terms of British export competitiveness; we would only consider our analysis to be a first approximation, but it lends little support to the arguments for tying.

A general economic evaluation of tying must start with two observations. First, tied aid tends to increase the prices yet reduce the choices facing LDCs. Consequently, resource allocation is distorted and there is a dimunition in the economic welfare of the recipient. Second, tying is a subsidy to exporters which distorts world prices so that resource allocation is sub-optimal. Furthermore, the subsidy favours a certain group of exporting donor companies, and these can then pay more for the factors they use intensively. This will distort relative factor prices in the donor and will impose costs on other firms. Hence, donor economic welfare may also be reduced. Given these considerations, if tying is to increase net donor welfare the tied aid

must be trade creating but, even if it is, recipient welfare is still reduced. The merit of untied aid is that it does not introduce obvious price distortions and if it furthers economic growth in LDCs it will ultimately benefit world trade and global welfare. The evidence reviewed in Chapter 9 suggests that tying of UK aid has not obviously yielded a net increase in the economic welfare of the UK hence, untied aid is generally to be preferred. To achieve this, multilateral tying is probably required, and this is a basic conclusion of our analysis.

The conclusion is presented in Chapter 10; first our basic thesis is outlined and then the evidence and arguments of the thesis are summarised. We argue that while certain conclusions are justified, others require more particular attention and provide avenues for further research. In essence, we believe our estimates of impact to be as extensive and robust as the data permit and that sufficient empirical work has been conducted on this issue; the aggregate ratios and multipliers can be applied to particular projects or forms of aid to obtain reasonable approximations of impact. Furthermore, we believe that the influence of the business lobby, in terms of inputs and outputs, has been fairly comprehensively evaluated. These are the two areas, as stated at the outset, which form the joint strands of the theoretical framework and encompass the two specific questions we hope to answer.

As in most areas of research, the attempt to answer one question throws up many more which, usually, are more difficult to answer (and, perhaps for that reason, appear more interesting). This thesis is no exception, and these deficiencies are addressed in Chapter 10 in the context of three future research areas: tying and the effectiveness of aid in LDCs; an econometric analysis of the aid-export relationship and a more formal application of strategic trade policy arguments to ATP, permiting a theoretical evaluation of the welfare effects of unilateral abolition of mixed credits and facilitating a more detailed study of the individual industries. The thesis will attempt to answer a particular set of questions, as set out in this Chapter, but also provides a basis for future research on an important topic.

CHAPTER 2. THE MOTIVES FOR AID I: RECIPIENTS

In Chapter 1 we defined aid as official development assistance; now we wish to establish the relationship, in theory and practice, between aid, economic growth and development. An understanding of this relationship will facilitate an evaluation of the implications of a commercially oriented aid policy for promoting development. Furthermore, it will be useful to understand the basis of the views of recipient governments and development lobbies, within donor economies, so we can later identify how these conflict with the interests of the business lobby. This Chapter does not attempt to cover fully the voluminous literature on aid effectiveness (see Cassen, 1986; Krueger *et al*, 1989; Mosley, 1987; Riddell, 1987). Rather, we wish to identify the features of the aid and development relationship most salient to our later discussion and analysis.

In Section 2.1 we outline a number of arguments for why there should be aid, ie. why should taxpayers in relatively rich countries give money to the governments of relatively poor countries, and sketch the implications of these for the effectiveness of aid in achieving its objectives, especially development, in Section 2.2. The first argument considered is the moral or ethical case and we will contend that while a reasonable case can be made for redistribution this does not itself provide a case for aid but, rather, has implications for the form of aid (ie. the redistributive objective should be achieved). We then outline the basic economic argument for aid in terms of the two-gap model, whereby aid may be required to finance investment that cannot be met from domestic (LDC) savings or to plug a balance of payments gap. Again, Section 2.2 will sketch the implications for the form of aid required. The third argument we consider, which is presented in a general way to encompass the previous two, treats aid as an international public good.

Essentially, in Section 2.1 we propose that aid can be justified as an instrument of global redistribution, in which case the benefits should accrue to the poor in LDCs, as a means of facilitating the efficient allocation of global resources and to help macroeconomic stabilisation, which can be in the interests of the global economy. In Section 2.2 we begin by relating these arguments to fungibility, the extent to

which aid releases LDC resources for other uses, and the incidence of aid - who benefits and what are the effects on the allocation of LDC resources, eg. via effects on relative factor prices or technology dependence. We discuss the effectiveness of aid, in general, to promote economic growth in recipient countries and consider the case of project aid and its effectiveness in promoting development.

Section 2.3 turns to the issue of tied aid and reviews the costs imposed on recipients by the practice of tying. There is evidence that goods supplied under tied aid agreements are costed at above world prices so that there is an inefficiency in the global allocation of resources. Furthermore, LDC choice is constrained, especially in respect of technology, which may conflict with the objectives of aid. Finally, in that section, we consider the debate regarding the relative merits of a dollar of aid as against a dollar of export revenue. It is our aim to demonstrate in this chapter that there are a number of arguments against tied aid because it reduces the capacity of aid to promote development.

One of the implications of our discussion in Section 2.2 is that donors may wish to exercise control over the disbursement of aid and the implementation of projects. While LDCs may resist this as infringing on their sovereignity, it is defensible on the basis that donor taxpayers have a right to try and ensure that aid reaches its targets. More generally, but not necessarily as defensible, donors wish to retain control over aid. A particular manifestation of this which assumed predominance in the 1980s is policy based lending or conditionality whereby the donor, usually the World Bank in these cases, attaches particular conditions which the recipient must meet in order to receive the aid. We discuss this issue briefly in Section 2.4, although such lending is outside the remit of this thesis.

2.1. The Case for Aid

We confine attention to three broad arguments for aid and do not intend a comprehensive review but, rather, wish to identify those arguments which have major implications for the form aid should take. First, we look at essentially redistributive arguments in the context of the moral case for aid. Then, using two-gap analysis as a basis, we explore some economic justifications related to

investment opportunities and resource allocation. These arguments are then brought together to present a general case for aid.

The Redistributive Case for Aid

The moral case for aid is complex and by no means clear-cut (Riddell, 1987, devotes some 75 pages to reviewing the debate). It is useful to distinguish the case for redistribution through aid *per se* from the form it should take. The first issue is whether there is an obligation for international redistribution. The second is, accepting such an obligation, does this require the donor government to allocate some of its scarce resources for redistribution. The third issue is which *forms* of aid are most appropriate to achieve redistributive aims. We consider each in turn in a necessarily brief exposition.[1]

One of the most appealing arguments for redistribution is Rawls (1973) *A Theory of Justice* which, at its barest, has two principal features, First, the rules for social justice are formed and legitimised within a model of social contract where the objective and correct principles to govern society could be agreed, and adhered to, by rational self-interested agents. Second, these principles would be those as chosen by rational self-interested agents in the original state, that is, behind a 'veil of ignorance' so that they do not know what position they will have in society. If widespread risk-preference among the decision-makers is precluded, the society chosen will include a moral case for redistribution (potential entrants will desire a safety net against the chance of their being born into poverty). This argument supports that of utilitarianism, since redistribution will increase the utility of recipients by more than any disutility to donors (given altruism or utility interdependence and/or diminishing marginal utility of money). It also supports the claims of 'basic needs', whereby it is held that all humans have a fundamental right to a basic minimum of subsistence (such as food, clothing and shelter) and, consequently, the rich are under an obligation to assist the poor in attaining this

[1] It is reasonable to note here that, unfortunately (in our view), Riddell (1987) does not draw such a clear distinction between the moral *imperative* for giving aid and the subsequent, but separate, arguments for different forms of aid. Our approach is that one can establish that aid *should* be given but that, even so, other factors come into play in determining whether aid *is* given and, if so, in what forms.

minimum (see Riddell, 1987:20-24; Dower, 1983, argues strongly for the moral case for foreign aid). The argument is that if potential entrants to society do not know their position in the income distribution or in space (ie. in which country) they will, *a priori*, accept that there should be redistribution.

The case for redistribution is not accepted by all. Nozick (1974) argues that the only basis for justice is whether the existing distribution arose in a just manner. Individuals have a fundamental right to all they possess and the State has no moral right to coerce the rich into assisting the poor. If one holds that existing distributions arose out of 'just procedures' then economic differences are deserved and reflect individual differences, and there is no obligation for redistribution. The extreme implication is that the poor are so due to individual characteristics, whether laziness or inefficiency, and there is no moral obligation to assist them; even if one did give aid, it would not be used effectively (Bauer, 1971).

The debate cannot be resolved here but we express preference for the Rawlsian line of argument in which justice is based on a set of principles that people can see to be correct and that they would favour *if abstracted from their existing position in society*, ie. it has the essentials for a moral imperative. Nozick's approach, on the other hand, defines an outcome as just on the basis that the historic process out of which it arose was just. Even if one accepts Nozick's premise, one can question whether the process was indeed just. Robinson (1979) and Bagchi (1987) provide considerable evidence to support any claim that the existing global distribution of wealth arose from a process, of imperialism and colonialism, which was far from just. Without going as far as accepting arguments that the Western economies owe LDCs compensation for past wrongs, we feel that historical experience tilts the balance of argument away from Nozick and towards the Rawlsian case for justice.

Even if one accepts the case for redistribution[2], government to government aid is not necessarily implied. At this level of argument there are three lines of criticism of aid (Riddell, 1987:13-15). First, a government's obligation is to its own citizens

[2] Note that redistribution is not the only source of a moral case for aid. Dower (1983, 1990) argues from the premise of 'the duty to alleviate the suffering of the poor', which is not conceptionally identical to redistribution, and may be morally stronger.

rather than those of other states. While this has important implications in practice, we find the argument in principle unappealing (see Dower, 1990, for a constructive critique). In the Rawlsian model, the veil of ignorance could include not knowing which country one would live in; the logical implication is that one would choose international redistribution of some form. A second argument is that while the government, as holder of the public purse, may be the proper authority to grant aid it is by no means clear that the LDC government is the most appropriate recipient. This argument has a point given that redistribution requires aid from the relatively rich to benefit the relatively poor, but the real implication is that aid should be targeted on the poor (which we discuss in more detail below).[3] The final criticism is that many demands on public spending derive from moral obligations and why should aid predominate?

> ... there are other claims with moral implications on a government's financial resources. Hence to constitute a moral justification for providing aid the potential donor not only has to accept the moral obligation to provide aid but also has to agree that in comparison with the obligations it has to its citizens and to its own country, foreign aid expenditure is a legitimate use of its financial resources. (Riddell, 1987:15)

This argument relates to many of the issues to be considered in the thesis, although phrased differently to our usage. We hold that the moral case for aid exists but that the ultimate choices of how much aid to grant and of what form arise from a policy-making process in which, amongst other concerns, the government weighs up the moral strength of conflicting demands. The ideological stance of a government will predispose it to one set of demands rather than others, but they will also be concerned with the economic return on government expenditure. Hence the relevance of evaluating the potential benefits of aid to the donor. To sum up so far, we hold that there is a redistributive case for aid, and that this implies targetting aid or otherwise trying to ensure that the poorest benefit, but it does little more than establish aid on the donors' policy-making agenda.

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[3] A common form of this argument is that some taxpayers in donor countries are poorer than some people in developing countries, and why should there be a redistribution from the former to the latter. The problem is of practice rather than principle and depends on the redistributive systems in both countries and the targetting of the aid.

> ... what government's ought to do [as representatives of their electorate] is a function of what people want and think ought to be done, not what, by some rational standard, is judged by the thinker ought to be done. [Thus, even if some aid, such as tied aid] ... is actually imperfect or downright inappropriate, the obligation of the government to give such aid is justified by appeal to the democratic basis of government. (Dower, 1990:4)

The philosophical arguments can present a moral case as to why aid ought to be given, either because redistribution is 'good' or absolute poverty is 'bad' (see the discussion of aid as an international public good, below). If accepted, they also indicate the form aid should take, eg. that it should be targeted on the poor or that the objective of aid is in terms of some underlying concept of development from which the poor will benefit and/or absolute poverty can be alleviated. However, to begin to explain why aid has taken the forms we observe, and to go part of the way to understanding the factors determining the effectiveness of aid, one must look to politics and economics, and the interface between the two. In the remainder of this chapter we focus on economic arguments (political arguments are introduced in the next chapter but are only developed fully in Chapter 4).

Dual-Gap Analysis as a Rationale for aid

A common economic justification for aid is based on the view that all economies are inter-related through international trade and factor mobility such that if growth in one country is retarded this will constrain the global economy. By implication, global resource allocation is sub-optimal and global welfare is not maximised. It is in the interests of all economies to facilitate the growth of each; this can provide the basis for international agreements, such as the General Agreement on Trade and Tariffs (GATT), or for aid as a reallocation of resources to where they can more effectively be used. Dual-gap analysis formalises this argument (Thirlwall, 1989:295-304, gives an extensive exposition). Using the conventional Keynesian notation (which differs from notation elsewhere in the thesis) and ignoring government, the following identities will hold *ex post* for, respectively, income, consumption, investment, exports, imports and saving (S) over the whole economy:

$$Y = C + I + X - M$$

$$Y - C = S = I + X - M$$

and

$$I - S = M - X \qquad (2.1)$$

Identity (2.1) states that if savings exceed investment ($I - S < 0$), consumption is less than production and the country will have a trade surplus. On the other hand, if consumption exceeds production ($I - S > 0$) there will be a trade deficit ($M - X > 0$). However, the accounting identity in (2.1) need not hold *ex ante*, ie. planned savings minus planned investment may not equal the planned trade balance; it is within this context of implicit planning to achieve a growth target that dual gap analysis provides a rationale for aid. Recalling the basic elements of the Harrod-Domar growth model (Thirlwall, 1989:296) we can define the growth rate (g):

$$s.k = g = v.m \qquad (2.2)$$

where s = the savings ratio

k = the output-capital ratio[4]

v = the ratio of imported investment goods to income

m = the marginal productivity of imported investment goods.

Equation (2.2) encapsulates the arguments that growth requires investment goods which can either be produced domestically, requiring domestic savings, or can be imported, requiring foreign exchange. Assuming that domestic and foreign resources are not substitutable, then growth is constrained to the level of whichever is lower, savings or foreign exchange. While this assumption may appear strong, since surplus foreign exchange may be able to compensate for a scarcity of domestic resources, there would at least be a lag in converting surplus savings into reducing the trade deficit. The essence of (2.1) and (2.2) is that two related gaps constrain growth. The investment-savings gap (I-S) states that domestic savings are too low to meet the target growth rate. The foreign exchange gap (M-X) states that the minimum import requirements (of investment goods) for the target growth

4 We outline the argument for the I-S gap, following the notation for (2.1) and with K equal to the capital stock: $k = Y/K$ and $I = sY = \Delta K$. Given $Y = kK$ and $\Delta Y = k\Delta K$ it follows that growth, $g = \Delta Y/Y = k(I/Y) = k.s$. An analogous argument applies to imports.

rate are less than the maximum of export earnings available. For any target growth rate both gaps can, and in LDCs probably do, exist simultaneously and foreign capital flows are needed to fill the larger of the two (in doing so, the other will also be filled). Thus, aid can fill *I-S* by bringing domestic savings up to the required level (this can be interpreted as an argument for project aid which is a form of direct investment); the expansion of domestic production will reduce the net demand for imports and/or expand exports, thereby filling the trade gap. Similarly, aid can fill the foreign exchange gap by financing imports of capital goods, eg. programme aid for balance of payments support. The latter may seem to present an argument for tied aid since this finances imported goods; this issue is explored in Section 2.3. There are clear merits to this analysis:

> It synthesises traditional and more modern views concerning aid, trade and development. On the one hand, it embraces the traditional view of foreign assistance as merely a boost to domestic saving; on the other hand, it takes the more modern view that many goods necessary for growth cannot be produced [domestically] and must therefore be imported with the aid of foreign assistance. (Thirlwall, 1989:297)

Dual gap analysis is not without failings or critics. In particular, from our perspective, the anlysis talks of foreign capital flows but does not specify if these should be grant-in-aid; the arguments could appear to favour tied aid as much as untied aid. More generally, the model does not provide a convincing mechanism by which both gaps can be filled. There is the obvious problem that project aid to compensate for a shortfall of domestic savings may not be effective, in that the final product is economically inefficient, or may not benefit those for whom aid is intended. These issues are addressed in Section 2.2. Bridging the trade gap is far more problematic since financing imports does not in itself facilitate the expansion of exports, and the LDC may receive inappropriate technology or become dependent on donor technology.

The paper which first proposed dual gap analysis (Chenery and Strout, 1966) was aware of these problems and placed the analysis within a three-stage growth process. In the first stage, the developing economy faced a shortage of skills and domestic savings but no significant foreign exchange gap. The purpose of aid was

to facilitate investment *not* consumption (see discussion of Figure 2.1 below), so the *I-S* gap could be closed. In the second stage aid may be required to maintain the momentum of growth in investment; although domestic savings may reach the proper level, structural rigidities and skills shortages keep the growth in the rate of investment below target. In the third stage the savings gap has been largely overcome and aid plugs the foreign exchange gap. The authors place considerable emphasis on the need for policy reform in LDCs and the effective use of aid, but may not have allowed sufficiently for both gaps being large at the same time. Chenery and Strout (1966:691) acknowledge that aid may not be very effective in plugging the foreign exchange gap over the long-run because LDCs face considerable difficulties in increasing exports and improving their terms of trade.

Aid as an International Public Good

Mosley (1987) argues that global income redistribution is an international public good, asserting that the basis of international redistribution is equivalent to intra-national redistribution. We generalise this argument to encompass the issues already discussed. The donor community can be considered as a global government whose budget is aid funds. We have already argued for redistribution but wish to add an allocative argument for aid. The strict allocative justification is that international capital markets are imperfect, and this provides the major case for project aid. Savings are low in LDCs, implying a high opportunity cost of investment, while projects are often very risky, subject to long gestation periods and may generate extensive externalities which make it difficult for the investor to capture the benefit streams (Krueger *et al*, 1989:44-46). Thus, international capital markets will allocate insufficient funds to LDC projects which should be undertaken.

Considering dual gap analysis, there is also a stabilisation case for aid: it is in the interests of the world economy to minimise global fluctuations. This provides a justification for programme aid, especially if directed at stabilisation. Redistribution provides a further case for aid though, following earlier arguments, in this case it should be targeted on the poorest groups. Distinct arguments for aid imply distinct forms of aid and much of the subsequent discussion in this thesis is predicated on such distinctions. The allocative and stabilisation arguments for aid require that the

funds achieve specific economic objectives, and the success of aid in terms of these arguments can only be evaluated against studies of the effectiveness of aid. The redistributive argument relies on the incidence of aid, ie. who benefits? In practice, the distinctions may become blurred but we believe they are worth making and emphasising. Furthermore, expectations regarding aid will depend on which justification is (subjectively) being assumed.

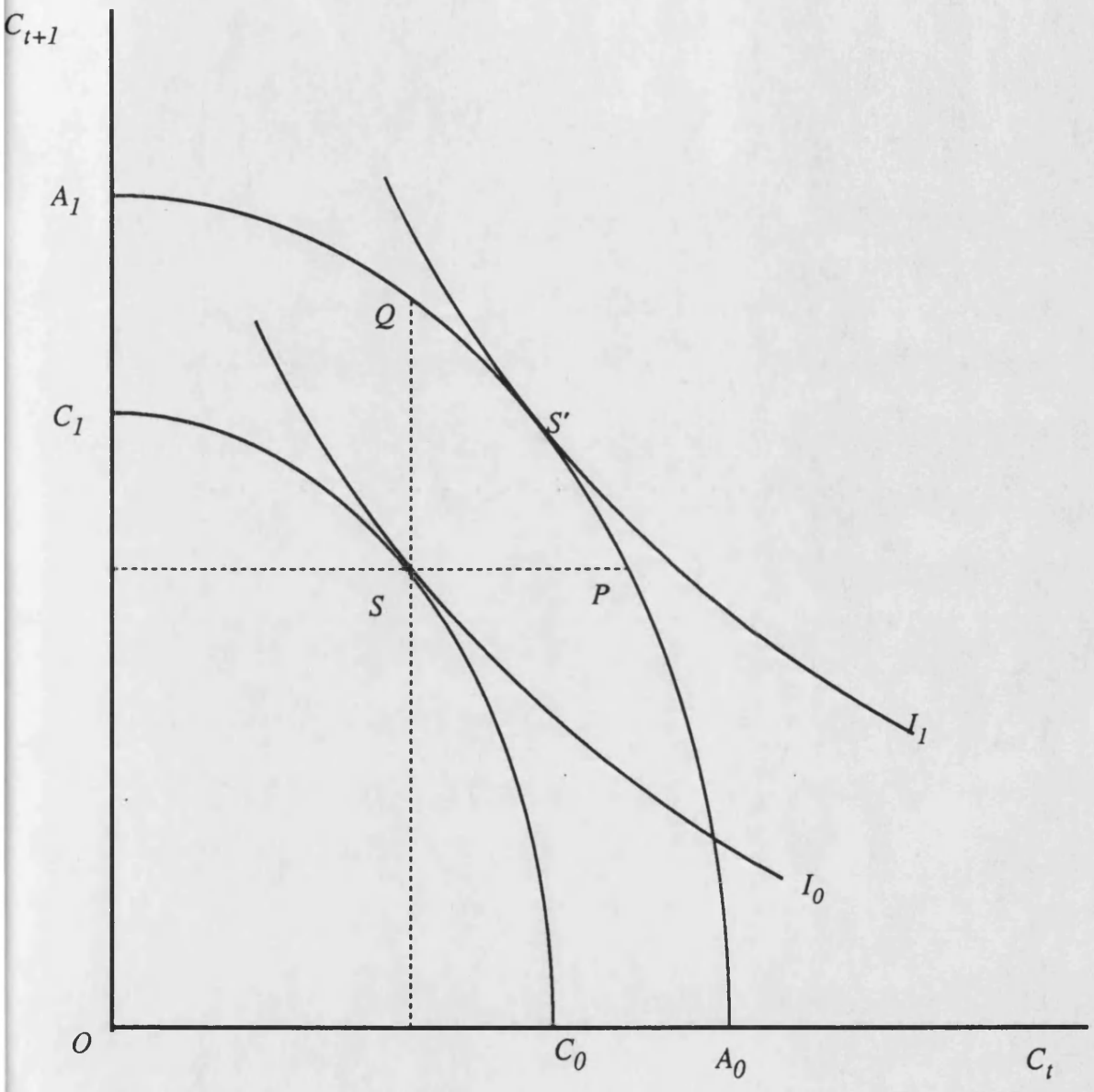
2.2. The Effectiveness of Aid

In the previous section we outlined a partial typology linking the justifications for aid to particular objectives in terms of the economic effects; not all aid can be related to a specific justification-objective pair but if we observe that certain objectives have been more consistently aspired to than others (appraised retrospectively from the effects), we can infer which arguments have dominated donor policy. We begin this section with a brief exposition of the concept of fungibility - can aid allocated for one purpose permit reallocation of funds to alternative uses? We then consider the incidence of aid, in terms of targetting the poor, and look at the evidence on project aid, which relates to the allocative function. We also consider the overall macroeconomic effectiveness of aid.

Aid Fungibility

It is convenient to present the argument in terms of inter-temporal production where funds can be allocated for present consumption or for investment, ie. future consumption. This choice is represented in Figure 2.1 (based on Mosley, 1987:86). Aid is implicitly treated as an addition to government revenue in the LDC with the government determining the allocation between consumption and investment. If aid is granted with no conditions attached it is a net increment to government revenue and the LDC can decide how it should be allocated. Even if aid is allocated for a specific purpose, but that purpose is one the LDC government would have wished to finance, it effectively releases public funds for other uses. Fungibility refers to this potential to substitute aid funds for planned expenditure, thereby releasing domestic resources for alternative uses, and implies that aid may not ultimately, or effectively in terms of incidence, be used for the intended purpose. We discuss Figure 2.1 for the case where aid is granted without conditions.

Figure 2.1. Aid and Intertemporal Production



Mosley (1987:87) distinguishes between aid pessimists and aid optimists. In the absence of aid, the initial inter-temporal consumption possibility curve is C_1C_0 (where, due to investment, $OC_1 > OC_0$) and I_0 is the LDC's social indifference curve for present (C_0) and future (C_1) consumption; the chosen outcome is at point S. The granting of aid, in time t, expands the inter-temporal consumption possibility frontier to A_1A_0 asssuming aid of amount C_0A_0. Aid pessimists such as Bauer (1971) argue that the LDC will squander the additional funds on present consumption and settle at point P where the aid will have no lasting effect on economic growth (it may alleviate immediate hardship, which may be desirable). Aid optimists argue that aid will be used effectively and invested productively so that the LDC settles at point Q. We can note that although the initial position S was based on LDC sovereignty (I_0), both these views deny that LDCs will seek, with aid, to maximise their utility. In other words, if aid is granted freely so that LDC governments retain choice over its allocation then they would seek the highest attainable social indifference curve and settle at S'. From the LDC perspective S' and not Q is the desired outcome.[5]

To argue that fungibility is undesirable or, by implication, that aid should be for the uses intended by the donor assumes that LDCs should not have sovereignity over the allocation of their resources. This is the underlying argument of the aid pessimists but it should be clear that the argument does not apply to aid *per se* but to the capacity of the LDC to use aid effectively. There may be political reasons why LDC governments do not maximise 'social welfare' but rather look after the interests of certain groups (eg. urban bias). It is beyond our scope to analyse the full implications of this point (that LDCs are not welfare maximising) but it is important because it provides an underlying rationale for attaching conditions to aid, whether tying or policy based lending. Furthermore, fungibility may have positive effects on the recipient economy. Pack and Pack (1990) demonstrate that there was a slight degree of fungibility for aid to Indonesia over 1966-86 but this was largely reflected in increased tax effort so as to generate funds to invest in sectors not favoured by aid.

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5 In fact, S' is the consistent outcome: if the LDC was initially at S it was maximising social welfare and why should it change its objective function when it receives aid?

This analysis also provides a useful basis for distinguishing project and programme aid. Project aid is very explicitly intended for investment, whether to fill a savings gap or to realise investment opportunities that are undervalued by imperfect capital markets. The intention of project aid is that the funds be used to obtain a position such as Q for the particular investment; if the aid is tied to the project the fungibility problem should not arise (can one object if any funds released are used to move towards S' on aggregate?). The implications of tying are considered in the next section. The intention of programme aid is quite different and may well be to achieve a position such as P (eg. food aid to alleviate hardship among the most vulnerable during structural adjustment) or, more generally under structural adjustment loans (SALs), may be intended to move the LDC into an economic environment where S' is attainable.

Aid Incidence and Targetting

Any aid programme will affect the allocation of resources, relative factor prices and ultimately the welfare (incomes) of economic agents (landless labourers, peasant farmers, urban workers, etc) in a complex way determined by economic inter-relationships. Consequently, if the benefits of aid are intended to accrue to a sub-set of the population, the design and implementation of the project, or programme, must be carefully appraised. Even then, uncertainty and imperfect information can upset the best laid plans. We will try to identify the key implications for the nature of aid, in particular if the intention is to alleviate poverty.

The easiest way to convey the relevant point is that any targetting objective can be interpreted as the magnitude of the distributive weights attached to consumption in the project appraisal (see Brent, 1990, for a clear exposition). Taking as given the economic appraisal of the project, in which the net social benefits and net social costs attached to the project are estimated, targetting relates to how one treats the consumption resulting from the project. If the intention is to increase the income of the poorest groups, landless labourers and peasant farmers in a rural project for example, then one attaches a premium (a weight greater than unity) to any increase in consumption of those groups. In particular, one would wish to attach a very high weight to any reduction in the income/consumption of those groups. Targetting

therefore requires a comprehensive project appraisal and, in particular, one that goes beyond a simple economic appraisal of costs and benefits to evaluate the distributive impact.

One distinction between aid intended to benefit the poor and aid granted to finance investment because of a savings gap or imperfect capital markets lies in the weights attached to distributive effects. Although we will not argue that tied aid necessarily has a lower distributive impact than untied aid, we will argue that certain types of UK aid, notably ATP projects, are subject to less rigorous appraisal than would normally be required. At the very least, the ability of such projects to meet targetting objectives is seriously impaired. More generally, the ability of inadequately appraised projects to confer net economic benefits must be questioned. If the purpose of aid is to alleviate poverty, full appraisal is required; if this is seen to be lacking, one may question if poverty alleviation is the underlying rationale.[6]

The Effectiveness of Aid

There are two broad aspects to the effectiveness of aid, not always distinguished in the literature, that reflect the distinctions we have already made. First, most studies on the aggregate effects are concerned with the relationship between aid and economic growth. In particular, they wish to test the hypothesis that aid makes a positive contribution to economic growth (eg. Mosley *et al*, 1987). This approach, in essence, is suitable for project aid motivated by capital market imperfections and/or a savings gap, and for programme aid motivated by stabilisation. Second, there are studies of the impact of projects which focus on targetting and distribution rather than just on economic effects. The point we wish to raise, although it is not one we can do justice to here, is that economic growth is not, in itself, a measure of development. While the correlation may be positive and high, economic growth is neither a necessary nor a sufficient condition for development (though it is probably a necessary condition for long-run, or sustained, development) because there is no guarantee that growth will improve the welfare of the poorest.

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6 Furthermore, much tied aid relates to capital goods which are not poverty-focussed: "Another criticism, from within the aid community itself, was that the capital-intensive industrialisation policies of the 1960s had contributed to the worsening of income distribution in developing countries." (Krueger *et al*, 1989:5).

It is not our intention to review the literature on aid effectiveness but rather to pick out the most salient conclusions from two comprehensive reviews, Cassen (1986) for project aid and Mosley *et al* (1987) for the overall effect on economic growth.[7] Given our comments above, it would appear that the former should relate more closely to development; this is not so because the Cassen review is largely concerned with the effectiveness of projects in terms of their economic appraisal, and distributive impact receives little attention (but is raised in Mosley, 1987, Chapter 6). We direct the interested reader to these studies, and wish to draw only two conclusions. First, it is exceedingly difficult to demonstrate that aid in general promotes economic growth. Second, the economic impact of projects reveals a varied experience, although the net effects could be positive if donors learn from experience, while distributive gains are even more elusive.

The aggregate effect of aid on growth presents a complex problem because the two variables are inter-related: it may be as easy to claim that slow economic growth attracts increased aid as it is to argue that high levels of aid promote growth. Also, the linkage between aid and growth is indirect; for example, aid may affect the level of private investment and/or relative prices, especially the exchange rate, which in turn can constrain any beneficial impact on the growth rate. Neither causal claim can be made with total conviction; according to a major study which attempts to account for the simultaneous relationship:

> ... we have found it impossible to establish any statistically significant correlation between aid and the growth rate of GNP in developing countries ... the apparent inability of development aid over more than twenty years to provide a net increment to overall growth in the Third World must give the donor community ... cause for grave concern.
>
> (Mosley *et al*, 1987:636)

The authors emphasise three critical parameters determining the effectiveness of aid: the productivity of (public and private) capital should be high; the proportion of aid diverted to recurrent budgets should be minimised, as should the potential

7 We do not imply that either study should be taken as the 'final word'. Cassen (1986) in particular has been subjected to criticism - Paul Mosley, a contributer to the Cassen study, was so dissatisfied with the tone of the published version that he was prompted to write his own book evalauating aid (Mosley, 1987).

distortionary effects of aid, whether on relative prices or crowding-out private investment. To enhance the effectiveness of aid, donors may impose conditions to account for these factors. The productivity of capital depends on the management ability and technical skills of the recipient, and its capacity to absorb aid; good project appraisal can help achieve adequate rates of return and allows one to focus on distributive impact, but TCA and long-run development of human capital are essential to improve capital productivity in the recipient. Aid diverted into recurrent expenditure is unavailable for investment although, on the other hand, the sustainability of aid projects requires a recurrent budget which should be built into the initial aid award (rather than diverted from future aid). Tied aid with its emphasis on capital goods often imposes a burden on future recurrent expenditure. Furthermore, capital projects are more likely than poverty-focussed projects to substitute for domestic private investment. These are some reasons why tied aid may, at least, make less of a contribution to economic growth than untied aid.

Aid on aggregate has not obviously been effective in promoting growth, and for reasons that may mitigate against tying. We now briefly consider project aid, with reference to the implications for tying and development (*qua* distribution). It must be stressed that while project appraisal theory has been developed to a sophisticated level, actual evaluations tend to be restricted in coverage.[8] The major weaknesses are the timing and scope of evaluation. In the first case, a question rarely answered is whether the project is self-sustaining once the aid ceases, although this has obvious implications for recurrent public expenditure. Secondly, logistic and data constraints imply that the boundaries of the evaluation are tightly drawn, so that important economic and distributive effects could be overlooked. "Some considerations - notably market analysis and marketing, and the interconnected choices of technology, scale and location - are seldom treated satisfactorily." (Cassen, 1986:106). It is generally the case that the evaluations are conducted by the donor agency, and may not be as critical as they could be. Consequently, evaluations have to be interpreted rather cautiously.

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8 Throughout, we interpret appraisal as refering to an analysis of the prospective impact of a project (*ex ante*) whereas evaluation refers to a study of the impact of the project after completion (*ex post*). The theory is essentially the same in both cases.

The World Bank is the only donor agency that routinely conducts evaluations; its projects during the 1960s and 1970s registered an *ex post* economic rate of return of 17 per cent on average, while over 1975-83 almost 80 per cent of projects achieved a return of at least ten per cent. Including studies by other donors the "common conclusion is that some 65-75 per cent of projects are found to be satisfactory or highly satisfactory, and most of the remainder problematic but not irreparably so, with a small percentage (in single figures) completely written off." (Cassen, 1986:109). Some commentators are more optimistic in emphasising the micro evidence of project successes and arguing that, while the macro evidence is ambiguous, "there is certainly no systematic evidence that aid has been *detrimental* to growth." (Krueger *et al*, 1989:123, original emphasis). While a range of factors can explain the failures, or limited achievements, of projects, and considerable emphasis is often placed on the policy environment in LDCs, one is of most relevance to our analysis: "On both sides, commercial and political considerations intrude to defeat or at least diminish the effectiveness of aid." (Cassen, 1986:169).

The final issue we wish to consider is the effect of aid on inter-personal distribution of income in LDCs. "We must begin with a warning. The quality of the data available for the analysis of the distributional effects of aid programmes within countries is very poor." (Mosley, 1987:163). The underlying problems are twofold. First, the nature of project appraisal/evaluation is such that it is easier to estimate net economic benefits than net social benefits, and the vast majority of evaluations are largely confined to economic effects. Secondly, it is extremely difficult to obtain information on the poorest groups and the few studies that do attempt to evaluate the impact on distribution focus largely on the incomes of the poor, although a more fruitful analysis would need to address the effect of a project on the entitlements of the poor (following Sen, 1981). Of the thousands of projects that have been undertaken, distributional effects have been estimated for about ten, and these relate to the non-representative sub-set of poverty-focused projects. While the method and scope of studies vary, rendering comparison difficult, "The pattern which leaps to the surface is that aid projects can help the poor but not the poorest." (Mosley, 1987:165).

There are a number of features of projects which have a broadly predictable effect on distributional impact (Mosley, 1987:169-81). First, the poorest are only likely to benefit from relatively small-scale, labour-intensive, technology; to the extent that tied aid promotes large-scale, capital goods, technology the expectation must be that it is unlikely to benefit the poorest groups (such projects often erode the entitlements of the poorest). Second, if the objective of the project is to make traded goods available the benefits will tend to go to those with the greatest purchasing power. This argument is best interpreted as indicating the form poverty-focussed projects should take (eg. providing primary health care or education in rural areas) rather than as critical of aid in general. For example, the poorest are unlikely to benefit directly from major power generation projects but may ultimately benefit if there are dynamic gains from the provision of energy to industry. Finally, the onus on aid projects to further redistribution is lessened if the recipient government itself engages in effective redistribution via taxation and public expenditure. While this has occured rarely in practice, it reinforces the importance of the economic environment and recipient policy.

This thesis is primarily concerned with explaining why British aid policy took the form it did during the 1980s and with examining the way in which the business lobby has promoted tied aid. In discussing the objectives of aid, we have argued that tying is inconsistent with poverty-alleviation and, in the preceeding section, demonstrated that tying will tend to reduce the potential effectiveness of aid. Even if aid is being offered as investment to promote growth, rather than specifically for redistribution and development, effectiveness is still limited and is not furthered by tying. The essential point is that tying is contrary to the objectives of aid as poverty-alleviation, and not necessarily consistent with the objective of aid to promote economic growth. Consequently, those who argue for aid to promote development (the development lobby) are generally opposed to tying.

2.3. Costs of Tied Aid to Recipients

Tying imposes a cost on recipients, the greater to the extent that it causes them to purchase more goods from the donor, and at a higher price, than would otherwise be the case. If all aid were untied so that the recipient could choose how to spend it each would have the opportunity to determine its own investment projects, to

determine the technology appropriate to its long term interests and purchase imports at world prices. Critics of aid may argue that LDCs are unable to avail of this opportunity being constrained, for example, by repressive political systems or inadequate administrative machinery, and are likely to make inefficient decisions (eg. Bauer, 1971). We have already discussed the limited effectiveness of aid in promoting growth and development and here take the position that, since aid *is* given, the issue rests on the relative costs of tying (if recipients are constrained in the ways outlined above any costs of tying may be greater).

There are two inherent economic costs of tying. First, tying restricts competition to the donor industries and thereby implies imperfect competition since the number of firms competing to provide an order is restricted and the scope for excess profits increasesd. Tied aid is, in economic terms, equivalent to an export subsidy the value of which can be shared between the supplying firm and recipient country (in partial equilibrium terms, the shares will be inversely proportional to the respective supply and demand price elasticities). Where the donor's tied aid forms a large share of the recipient's total, or at least the total for particular sectors, the potential for excess profits increases as monopoly exporters appropriate the aid subsidy since demand is probably more inelastic than supply.[9]

Empirical estimates for the 1960s (Bhagwati, 1967) suggested that tied prices could include 33 to 50 per cent 'excess costs' to most recipients. Increased international competition suggests that the scope for excess profits has lessened in the 1980s; recipients with very limited resources need aid to afford the order but suppliers facing intense competition (from other donor firms) are likely to cut their margins to win market share. This argument notwithstanding, more recent estimates suggest that excess costs can still be as high as 50 per cent, with transport and shipping costs an important consideration (Jepma, 1989:49-52). It seems probable that tying increases the cost of goods to recipients (relative to world prices). The second inherent cost is that tying increases the liklihood that goods offered to recipients are

9 We do not wish to overemphasise these partial equilibrium arguments because, in our view, a formal analysis may require badly behaved demand and supply curves. In particular, demand could be highly inelastic or non-existent above a certain price.

not those that would be chosen in a perfect world and therefore represent an inefficient allocation of resources (Johnson, 1967). Tied aid reflects donor technology rather than the techniques most appropriate to recipients and the specifications create a dependency, for maintenance and spare-parts, which is rarely accounted for in the aid award. In general, "... the goods and services offered are of low priority to the recipient, are excessively capital-intensive, are highly dependent on Western technologies and are import-biased." (Jepma, 1989:10).

There is a further cost of tying for (potential) exporters in developing countries. It is generally assumed that while tying can confer a trade advantage to a donor this does not impose a trade cost on developing countries (Button and Westaway, 1988). Tying reduces competition; access to the market is restricted, profit margins and prices can be higher, and the allocation of resources less efficient, than in free trade. Thus, tying creates a barrier to entry for developing countries whose industries could compete in markets dominated by donor industries.[10] There is some evidence for this in international construction where newly industrialising countries such as Brazil, Korea and India significantly increased their market share throughout the 1970s but suffered most when the global market collapsed in the 1980s; contractors from the major donors were somewhat protected by tying policies (Strassmann and Wells, 1988).

In summary, untied aid is preferable because, *ceteris paribus*, tying leads to higher prices, an inefficient allocation of resources and increases the likelihood of inappropriate technology being exported to recipients. Given the use of tying to promote donor trade interests, it is worth considering the literature on aid versus trade for recipients, ie. will the economic benefits to recipients be greater if they receive aid rather than if their exports increase by an equivalent amount. The benefit of pure aid (A) to a recipient can be interpreted, following Johnson (1967), as saving the excess burden of import substitution (c) while providing money for investment, and is defined as $(1+c)A$. Similarly, the revenue from exports (X) is

[10] Bob Hine has pointed out that in a Heckscher-Ohlin world this may be a null set. We accept that this may be true for most industries but believe there are many markets where tied aid acts as an effective barrier primarily because it determines that Western technology must be used. If recipients could choose the technology they may well find suppliers from developing countries.

used to purchase imports which would otherwise be inefficiently produced domestically, with an implied benefit of cX. Pure aid confers a greater net benefit than export revenue since $(1+c)A > cX$ given $A = X$.

Thirlwall (1976) pointed out that not all aid was in grant form so that the nominal value often contained a soft loan element (yielding a 'grant-equivalence factor' g) which reduces its real value to recipients (to Ag) so the net benefit is $(1+c)Ag$. Furthermore, tied aid tends to increase prices - a dollar of tied aid buys less - so that the relative value of a dollar of exports is greater by a factor of the ratio of tied aid prices to free market prices (r), giving a net benefit of rcX. Thirlwall (1976) argues that a unit of tied aid is still likely to be worth more, in terms of avoiding import substitution, than a unit of exports, ie. $(1+c)Ag > rcX$ $(A = X)$. [11]

If one accounts for indirect effects on savings, relative prices and public investment, exports may be of relatively greater net benefit than tied aid (Mosley, 1988).Also, in terms of long-run development, one would wish ultimately to be able to replace aid (as a source of savings and/or foreign exchange) with exports. Whatever the net outcome, it is clear that tied aid is of less benefit than untied aid. Incorporating our view that tying creates a barrier to entry for LDC exporters complicates the argument. The potential for exports, which can be interpreted as the probability of achieving a particular export benefit, is then a declining function of the incidence of tying. The expected value of exports is therefore less and it may well be the case that tied aid is preferable to no aid (ie. exports), although untied aid is better still. In terms of global resource allocation, however, it is the case *for* tying that needs to be proved.

2.4. The Development Objectives of Aid

One aim of this Chapter was to establish the view of the objectives of aid held by what we term the development lobby, those who support aid to assist economic growth, alleviate poverty and improve the level of income distribution in LDCs. The aim is to define a development view of aid against which the commercial view, which forms the focus of this thesis, can be compared. The concepts of growth and

[11] This conclusion has been challenged by Yassin (1982) and defended by Thirlwall (1983) with the argument centering on the appropriate values for c, g and r and their comparison.

development have been contrasted and it was noted that the objectives of aid appropriate to each differ and have implications for the form of aid that would be recommended.

Aid for development *per se* has been interpreted as aid with the specific objective of alleviating poverty and improving the welfare of the poor in LDCs. If one questions the redistributive capacity of the recipient and its ability to maximise social welfare (as distinct from favouring specific groups), assistance should take the form of project aid. Such projects require detailed appraisal to ensure that they are targeted on the poor, are best directed towards labour-intensive appropriate technology or the provision of non-traded services and facilities, such as primary health care or irrigation, and the aid should be untied.

The other broad case for aid is to promote growth because the investment capacity of LDCs is constrained, either due to low savings, limited foreign exchange or imperfect capital markets. A foreign exchange gap tends to justify programme aid and, in particular, balance of payments support; constraints on meeting domestic investment opportunities or needs justify project aid. Programme aid need place less emphasis on targetting (although distribution should remain an argument) and is consistent with capital goods projects and infrastructure development, so that it is more likely to accomodate the commercial objectives of donors. However, untied aid remains preferable because it implies prices nearer to competitive world levels, a more efficient allocation of global resources and permits greater choice to LDCs.

It would be remiss to end this chapter without brief reference to policy based lending, especially SALs; while such aid is not directly relevant to our thesis, the incidence of tying can affect the effectiveness of SALs. The basic objective of SALs is to encourage market liberalisation in LDCs, with special emphasis on eliminating distortions on prices, exchange rates and trade. The underlying effect of tying, as outlined in the next chapter, is to support donor exports to LDCs. Intrinsically, tying imposes price, allocation and trade distortions which are, themselves, contrary to the underlying arguments for SALs (see Morrissey, 1991, for a development of this argument in reference to Africa). It follows that the prevalence

of tying can interfere with the effectiveness of SALs; this is not an issue we expand on, but note it here as an additional criticism of tying.

A final point is worth elaborating since it may have been noticed by the observant reader: a number of the arguments presented here provide a rationale for attaching specific conditions to loans. In particular, the *moral imperative* for aid, if one accepts that it exists, requires that aid achieves the objective of alleviating poverty which, in turn, requires targetting. It is not difficult to imagine circumstances where it would be impossible to target aid without attaching rigid conditions. For example, the target group may quite obviously be politically disenfranchised (the discussion of aid to Haiti in Riddell, 1987, provides a useful case). Moving towards the more conventional interpretation of conditionality, and recalling Figure 2.1, the ultimate economic rationale for aid is to bridge some sort of market deficiency, such as a savings or foreign exchange gap, so that the recipient economy can operate more efficiently. To this end, conditions which, at least, encourage LDCs to remove the more blatant economic distortions to the functioning of their economy (and this should not be interpreted as requiring 'free markets') may be consistent with ensuring that a particular form of aid is more likely to achieve its objectives.

CHAPTER 3. MOTIVES FOR AID II: DONORS

The development reasons for granting aid have been identified; these explain why aid should be given, and provide indicators of the form it should take. Our basic thesis, however, is that aid is a component of public policy so that, to understand why aid takes the forms it does, one must look to the influences on donor aid policy. The political aspects of this theme are developed in the next Chapter; here we wish to identify the self-interested economic motives determining donor aid policy. We distinguish gross *commercial* benefits, the level of economic activity attributable to the aid budget, from the net *economic* benefit once allowance has been made for resource reallocation, price and welfare effects. Commercial benefits can be measured, as we do in later chapters, and can therefore have a direct input to aid policy-making. Economic benefits are far more difficult to quantify but provide qualifications for any estimates of commercial benefits.

The commercial benefits are the value of the exports financed fully or partly by aid, plus the value of associated economic activity. The measurement of these benefits is the empirical subject of this thesis. To assess the extent to which these benefits represent a net economic gain one must question, for example, whether the exports could have resulted in the absence of aid, whether the resources deployed in meeting these exports had efficient alternative uses and whether the transfer from donor taxpayers to firms was welfare increasing. We pose such questions in this chapter, and identify the issues that must be addressed to determine if there is an economic benefit. These questions are difficult to answer formally and almost impossible to resolve empirically, nor is this our aim. Estimates of commercial benefits can only be evaluated against the implications for net economic effects.

Aid is a capital outflow which reduces the donor's balance of payments; this resource cost is reduced by the extent to which the aid generates donor exports, which represent revenue to, and economic activity in, donor industries. The general approach adopted to measuring commercial benefits is to estimate the value of exports attributable to aid, termed *aided exports* (x_a), and quantify the impact of

these on the economy. There are four elements of donor benefit, as identified in Section 1.2 above. First is the direct benefit of aided exports. Second are indirect benefits due to the economic activity required to meet these exports. These two elements, comprising the commercial benefits, are discussed in Section 3.1. Third is whether aid is trade creating; this is the subject of Section 3.2, looking at trade between donors and recipients and Section 3.3, which considers competition between donor firms for LDC markets. Fourth, would the resources devoted to aided exports have otherwise been productively used; the issues of displacement and opportunity costs is the subject of Section 3.4. Finally, in Section 3.5 we conclude on the commercial benefits and the probable net economic effects.

3.1. The Commercial Benefits from Tied Aid.

The basic rationale for tying aid is provided by transfer theory (Jepma, 1989:34). Aid is a balance of payments cost and tying generates exports which reduce the resource cost of donor transfers to LDCs. The value of exports is a direct offset, but other trade effects must be considered to get at the net resource costs. Although anticipating Section 3.2, this is an appropriate point to review an early study estimating the resource cost of UK aid. Hopkin and Associates (1970) considered four elements in the impact of aid on the balance of payments.

First, there is the *direct* effect of the offset due to exports, and it was estimated that 72.5 per cent of UK bilateral aid over 1964-66 was spent on exports. Second, is *switching*: if an LDC receives money for one purpose this allows it to switch previously allocated funds to some other purpose (discussed as fungibility in Chapter 2). Tying is ineffective if it allows money that would have been spent on UK exports to be switched to the goods of a third country, but is effective if the project would have been awarded to a third country (and, presumably, if the project would not otherwise have been commissioned). The authors estimate that 62 per cent of fully tied aid was switched over 1964-66 and that a fifth of this was spent on UK exports. The implication is that half of the exports would have been secured even without tied aid. Adjusting the direct effect, some 53.6 per cent of bilateral aid was spent on exports (ignoring switching *to* the UK from other donor's aid).

The third factor considered was *induced* imports: insofar as aid contributes to economic growth it will stimulate increased demand for imports by LDCs, some of which will translate into UK exports. The authors estimate that 22 per cent of UK bilateral aid was spent within the LDCs on domestic production, which generated export demand and a multiplier effect so that the equivalent of 4.1 per cent of aid returned as demand for UK exports, increasing the return on aid (exports as a percentage of initial aid) to 57.7 per cent. Finally, the authors try to account for a *reflection* effect whereby the proportion of aid spent on third country products is reflected in an increase of UK exports to those countries.[1] Allowing for all four elements Hopkin and Associates (1970:8) estimated that 62.6 per cent of UK bilateral aid returned as exports, implying a net balance of payments outflow.[2] Missing from the analysis, however, is any estimate of the expected return, in terms of exports, had none of this aid been tied (over half was).

Another gain from tying is the impact on the donor economy: exports require increased production and generate employment and additional tax revenue, which defrays the net cost of aid to the Exchequer. The impact of aid, as used here, refers to the measure of the commercial benefits. We outline the impact approach to measuring commercial benefits and summarise the literature on employment effects before concluding the section with a brief review of studies of the imapct on firms. This Chapter reviews the issues and we present detailed impact estimates of other studies in later chapters where they can be compared directly with our own.

The Impact of Aid

It is the aided exports, not aid itself, which impact on the donor economy; the fundamental determinant of impact is the ratio of aided exports to initial aid (termed here the *export ratio*, ρ_a, for a type of aid, *a*). This *direct benefit* differs between types of aid, as outlined in Section 1.2. The most important distinction is between

1 In our impact analysis we take into account the increased imports required by the UK to produce aided exports; adapting Hopkin's terminology this could be called a deflection effect, as part of the value of UK exports is deflected to other countries.

2 May and Dobson (1982) estimate a return of 114 per cent for Bilateral aid over 1974-79. They include UK exports captured from other donors' untied aid, but exclude the potential gains from induced imports and reflection; nor do they include the switching or deflection losses.

bilateral aid, some portion of which can be tied (yielding $\rho_\beta < 1$, where β designates bilateral aid), and multilateral aid, which is generally perceived as untied. However, the *juste retour* principle enhances the possibility that the export ratio can exceed one given agency' borrowing on international capital markets ($\rho_\mu > 1$, where μ designates multilateral aid). Aided exports will generate *indirect benefits* through increased economic activity. In order to produce exports, an industry must purchase inputs from other industries, the value of which should also be included as part of the impact. To meet the increased demand for their products or services, the other industries will also demand inputs, and so on. The value of this *output multiplier* can be calculated (using Input-Output analysis) to measure the total production required throughout the economy (see Section 1.2).

Input-Output (IO) analysis provides a formal method to measure impact. The economic relationship underlying IO is the inter-dependence between industries in an economy; part of the output of one industry is an intermediate input for others, and each uses the products of other industries to make its output. From the IO Tables for an economy, one can calculate the Leontief inverse, a matrix representing by how much the output of each and every industry will have to increase to meet an increased demand, such as aided exports, for the output of one or more industries. The total outputs can be decomposed into demands for intermediate and imported inputs, labour income (from which employment estimates can be derived) and increased tax revenue.

That portion of an industry's inputs not coming from other industries is the share accounted for by primary inputs, basically labour, profits, rents, some taxes and imported inputs. Imported inputs do not contribute to the donor economy and can be subtracted from the value of aided exports to give the net value of exports attributable to aid. The taxes paid on primary inputs, including labour and profits, contribute to government revenue and, if expressed as a percentage of the aid budget, can be treated as a measure of the return on aid to the Exchequer. Finally, the employment supported by aided exports can be estimated by calculating the number of employees per unit of industry output and multiplying this by total industry output.

Employment Effects

The literature on the impact of British aid is quite sparse and largely comprises reports or project studies by individual companies or business lobbies. These tend to concentrate on two features of impact. First, although a contract is awarded to one large contractor, economic linkages and sub-contracting mean that a very large number of small companies will get orders. Northern Engineering Industries (NEI) estimated that one major project involving £292m spent in the UK provided orders for over 2,600 companies, 25 per cent of which employed less than 50 people, and helped the survival of some of these, many of which were in the 'industrially declining' areas of the UK (NEI, 1988). Second, and receiving greater attention, are claims that exports create employment. Even accepting the implicit assumption that there would be no compensating orders in the absence of aid, it does not follow that new orders imply new employment; the increased output may be met by overtime and increased productivity rather than increased employment.

In a survey of firms winning aided exports over 1978-84, 21 per cent of orders were accounted for by firms claiming no employment effects, 16.6 per cent of orders were in firms claiming labour addition, new jobs and/or overtime, and more than 50 per cent were in firms claiming at least labour retention, so that no labour time or jobs were lost (May, Schumacher and Malek; 1989:154). Sustained orders, a market share in LDCs, will generate employment so some jobs are due to aid; nevertheless, we will talk of the level of employment *supported* by aided exports. There are a variety of ways to estimate employment effects. One is to argue that a certain number of jobs are associated with each £1m of exports and assume this holds for x_a; the Minister for Overseas Development argued in this way that each £1m of x_a resulted in 154 jobs in 1976 (cited in May and Dobson, 1979:17). Alternatively, micro-studies of firms winning x_a can generate harder figures: there have been estimates of 127 jobs per £1m x_a in 1976 (May and Dobson, 1979:18), an average of 86 jobs per £m over 1975-79 (May and Dobson, 1982), roughly 119 over 1979-81 (MacQuaide and Toye, 1986) and the equivalent of 65 per £1m x_a in 1985/6 (Hawker Siddeley Power Engineering, HSPE, 1986). This declining trend is consistent with increasing labour productivity over the period.

An alternative method, which may be necessary if micro-data is not available, is to estimate the effects of orders using direct and indirect employment multiples for different industries. McGregor (1986, 1987) applied direct employment multiples for the number of construction employees per £1m in contract value and estimated indirect employment as the number of employees that could receive the average wage from the estimated value of orders to suppliers and sub-contractors. His results can be interpreted as associating 53 man years of employment with each £1m of x_a in 1985.

The IO method of impact analysis is one of the best ways of estimating the employment potential of aggregate x_a on the whole economy since it accounts for the direct employment in the industry winning the order and derived indirect employment in supplying industries. The only study we are aware of to use this method for aid in general is May, Schumacher and Malek (1989). Their estimates can be expressed as 51 man years of employment per £1m of exports to LDCs in 1984, although for aid shipments, for which IO analysis is used, they find that the number of employees associated with £1m x_a fell from almost 99 in 1978 to 49 in 1984, which is to be expected given rising productivity (we discuss the issue of aided exports and employment in Chapter 9).

Commercial Benefits to Firms and Industries

The ways in which aid can assist firms, and how this varies depending on the nature of the overseas business they are engaged in, are discussed in Chapter 6 but some issues can be covered here. The first point is that aided exports tend to be concentrated in a few industries. Over 1975-77, mechanical engineering took 35 per cent of aided exports, electrical engineering and vehicles each took 15 per cent, metal manufacturing 13 per cent and chemicals almost 11 per cent (May and Dobson, 1979). The corresponding shares for the early 1980s are similar, except for chemicals whose share becomes much lower. Twelve four-digit SIC industries accounted for over half of bilateral aid-financed business over 1978-84 and, of these, process engineering contractors won 10.6 per cent and basic electrical equipment 9 per cent (May, Schumacher and Malek; 1989:100).

The firms winning aided exports tended to be larger, at least in employment terms, than the average. Excluding firms employing less than 100, almost 20 per cent of the firms receiving orders over 1975-77 employed over 10,000 whereas only 1.6 per cent of all firms were in that employment range (May and Dobson, 1979:6). Aided exports tend to be concentrated in few firms: some 3,300 firms won aided exports worth at least £5,000 over 1978-84; the 24 with orders of £10m or more accounted for over half of total orders, while 83 companies with orders of £1m or more accounted for over three-quarters. This contrasts with the less than 50 per cent share of the 100 largest UK enterprises in 1981 domestic output (May, Schumacher and Malek; 1989:148). These orders were important to the firms winning them, accounting on average for 12 per cent of sales and 19 per cent of exports, representing specially manufactured products in some 60 per cent of cases (by value) while in only 13 per cent of cases (by value) did the firms expect that orders would have resulted without aid (May, Schumacher and Malek; 1989:151-3).

The distribution of aid orders tended to favour some regions more than others, largely reflecting the concentration of engineering plants. Over 1975-77, Scotland did relatively well, accounting for some 25 per cent of aided exports compared to an 8.6 per cent share of UK manufacturing output. The North and West Midlands also fared relatively well, whereas Yorkshire, Humberside and Wales fared badly relative to their shares of manufacturing (May and Dobson, 1979). This geographical distribution changed, for no apparent reason, by 1978-84 when the North, East Midlands and Yorkshire & Humberside were the regions whose share of bilateral orders exceeded their share of manufacturing output; Wales and the South West were the only regions for which the former share was less than half the latter (May, Schumacher and Malek; 1989:122).

3.2. Trade Effects of Tied Aid

If aid contributes to the economic growth of recipients it will, in time, provide new export markets for donors. Donor industries will win a share of global orders which, in the absence of tying, should reflect their market share (the UK accounted for some eight per cent of Western exports to LDCs over 1978-84). This would be the desired position in a competitive free-trade world, and would correspond to an

efficient allocation of resources. Donors tie aid in the belief that this will provide them with a higher share of LDC markets than would otherwise be the case.

Aid is not fully trade creating if there are *substitution effects*, that is, if the aid is used to finance goods which would otherwise have been purchased from that donor (this corresponds to Hopkin's switching). These effects are more likely if tied aid goes to a relatively large country having trading links with the donor; they are least likely to arise if recipients are countries with which the donor does not normally trade, or if the recipient is severly resource constrained. When untied aid is granted to a trading partner there is an expectation that the money will be spent on donor goods. Given competition between major donors and the evolution of world trade, traditional ties are weakening such that tied aid may act as an instrument of export protection, with the presumption that substitution effects will be slight. In a review of some evidence, Jepma (1989:37) concludes that some 30 to 50 per cent of tied aid is not trade creating (ie. is switched or substituted).

On the other hand, aided exports facilitate market penetration and may generate a *radiation effect* if donor firms generate goodwill and win subsequent unaided orders. Substitution and radiation effects act in opposing directions and tend to be affected by the same factors in the same direction; trading ties and economic buoyancy in the recipient economy enhance both. Competitive tying between donors is also important since those offering a greater volume of tied aid are more likely to win a net increase in market share; as others tie, any individual donor is under pressure to offer tied aid to protect its market share. While tying may not appear to increase market share, the absence of tying may lose market share (the relationship between tying and market share is asymmetric). Once tying exists it is therefore self-perpetuating.

> If a donor grants a relatively large share of its aid to a small and relatively poor country, it may generally be expected that the resulting increase in trade towards that country will be less than the tied part of the aid. The reason is that in this bilateral relationship the substitution effect (only aid is used to finance flows that otherwise also would have been realised) surpasses the radiation effect ... (Jepma and Quist, 1988:41)

Thus, donors who concentrate their tied aid on the small, poorest recipients are the least likely to experience net trade creation. This poses a challenge to any 'Aid to the Poorest' strategy since "in those cases where a relatively intensive development relationship was built up ... the development of commercial trade was slower." (Jepma and Quist, 1988:40). This is one reason why pressures for export-oriented aid focus on tied aid to relatively rich recipients for whom the radiation effect may be large (see, in particular, Chapter 8).

It is very difficult to assess objectively the trade-creation versus trade-protection effects of tied aid, especially because most of the evidence comes from surveys of industries winning aided exports. Over 1975-77, the majority of firms said that aided exports followed their normal export activities, especially if they had ties in the recipient, and that very few generated subsequent orders, implying that trade creation was limited (May and Dobson, 1982:50). A survey of firms winning orders over 1978-84, in which respondents accounted for about half of the total value of aided exports, found that a third of firms claimed no significant effect of aided exports in generating commercial orders. However, more than 13 per cent won follow-on orders, over 20 per cent won spares orders and over 25 per cent won spares and follow-on orders (May, Schumacher and Malek; 1989:157). No indication of the value of such business was given but the evidence suggests that aid can assist firms in increasing their share of LDC markets.

There is no evidence that aid, on aggregate, has had a significant effect on Britain's exports to LDCs. In a cross-section regression analysis, although some 85 per cent of the variance in Britain's share of Western exports to LDCs over 1978-84 could be explained, the significant factors were historical ties, direct investment and the commodity structure of demand while aid, measured as UK share of total Western bilateral aid, was not significant (May, Schumacher and Malek; 1989:175-83). The equations were subject to multicollinearity and were specified in a rather *ad hoc* manner so that the results are not robust.[3] Furthermore, the formulation cannot

3 For example, Berlage and Vanderlee (1978) argue that historical ties and political factors are the determinants of aid allocations by donors; it is therefore possible that aid is insignificant in a single equation specification because it is simultaneously determined.

distinguish what would have been the case under untied aid. Finally, export competition is not really between donors, but between donor' firms, where aid support may have a greater importance.

3.3. Strategic Trade Policy and the Implications for Tied Aid

Traditional trade theory is based on general equilibrium welfare economics; where markets are perfectly competitive and not subject to externalities, non-intervention is the recommended government policy for maximising economic efficiency and welfare. While other maximands may exist, these are generally deemed outside the remit of economics, or particularly treated as distortions. If the basic assumptions of perfect competition and no externalities do not hold, the principle of second-best may still support the recommendation of non-intervention. The new international economics (Krugman, 1986a) is based on a game theory approach in which competition between firms in international oligopolistic markets is modelled as a positive-sum repeated game. The basic feature for Strategic Trade Policy (STP) is imperfect competition:

> Specifically, there is an international market for some good or closely related set of goods, but there are relatively few firms in the market. As a consequence it is possible for firms to earn profits above the rate of return earned in purely competitive industries. Trade policy then emerges as a national attempt to obtain as large a share of these international profits as possible. (Brander, 1986:25)

Our interest in STP is that it is an economic theory which is capable of providing a justification for export subsidies, in which tied aid can be included. Under certain restrictive conditions regarding the nature of the imperfectly competitive market, it is possible that an export subsidy can increase domestic welfare and net global welfare. If the industries winning aided exports meet these conditions, then tying could yield a net economic gain to both donor and recipient. The formal analysis of STP is beyond our scope but the central idea can be conveyed with a simple case of oligopolistic competition, after which we generalise to discuss the required conditions. We can then consider, in later chapters, whether the allocation of aided exports tend to be to industries which meet these conditions.

A Simple Case of Cournot Oligopoly

The basic premise of Cournot competition is that firms choose the quantity to produce so as to maximise their expected payoff (profit) given that there is a single market clearing price determined by the total output of all firms. Each firm thus has a reaction function which defines its best response, in terms of output to produce, given the outputs chosen by other firms. We assume certainty, so each firm will choose its best response; symmetry, all firms face identical cost functions; and a once-off game with homogenous products (the presentation here is drawn from Dixon, 1988). Given a single price (P) and output of the i^{th} firm (x_i) we can define the inverse industry demand (where the i^{th} firm is excluded from the j firms in the summations over all n firms):

$$P = 1 - x_i - \Sigma x_j \tag{3.1}$$

assuming constant marginal costs (f') we can define costs:

$$f_i = f'x_i \tag{3.2}$$

hence profits

$$\pi_i = x_i(1 - x_i - \Sigma x_j) - f'x_i \tag{3.3}$$

choosing output to maximise profits

$$\partial\pi_i/\partial x_i = 1 - 2x_i - \Sigma x_j - f' = 0 \tag{3.4}$$

yielding a reaction function:

$$x_i = r_i(x_j) = (1 - \Sigma x_j - f')/2 \tag{3.5}$$

given symmetry, all firms produce the same (Cournot) quantity:

$$2x_c = 1 - (n - 1)x_c - f' \tag{3.6}$$

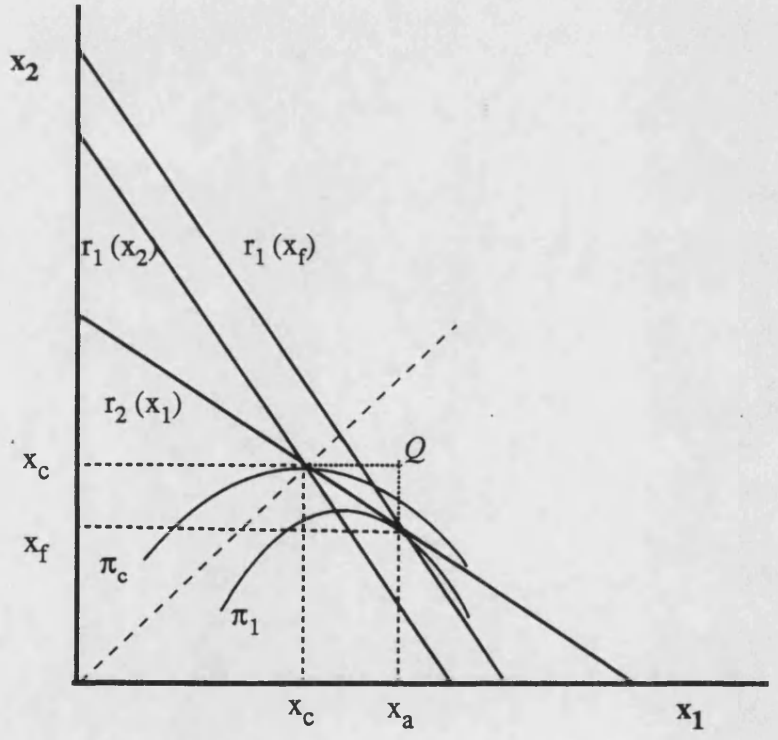
implying Cournot quantity

$$x_c = (1 - f')/(n + 1) \tag{3.7}$$

The Cournot quantity, x_c, is a Nash equilibrium as represented by the intersection of the two reaction functions depicted in Fig. 3.1. In the Figure, both firms face (3.1) and symmetry ensures both face (3.2) implying symmetric reaction functions, $r_1(x_2)$ and $r_2(x_1)$, around the dotted 45° line. Both firms produce the same output and earn the same level of profits. The quantity decision is given by (3.5), ie. each firm will choose a point on its reaction curve and the Nash equilibrium is stable because both are making their best response. The essential point here is that

each firm chooses output based on its assumption of how the other will choose since combined output determines price and, hence, profits.

Figure 3.1. Cournot-Nash Equilibrium



Profits can be represented by iso-profit curves such as π_c in Figure 3.1 which is a loçus of (x_1, x_2) points for firm 1 to maintain the same level of profits: given (3.1): a point on π_c to the right of x_c implies profits are maintained as more is sold at a lower price; a point to the left along π_c represents maintained profits as less is sold at a higher price. Viewed another way, the output of firm 1 defined where an iso-profit curve crosses its reaction curve is that output allowing firm 1 to earn the given profit while allowing firm 2 its maximum output. From such a point, if firm 2 increases its output, price falls and so too do firm 1's profits. Alternatively, if firm 2 reduces output, price rises and so too do firm 1's profits. In fact, a firms reaction curve is the locus of the peaks of its iso-profit curves and the nearer the π_i to the respective axis, the higher the implied profits. Thus, a firm will wish to be on the lowest attainable π_i (the highest attainable profit). In Figure 3.1, π_c is the Cournot profit where both firm's are producing the same quantity (x_c); since each firm is on its reaction function, each is earning the highest attainable profit given its rival's output decision.

We can now indicate the case for an export subsidy. Firm 1 would prefer to be on π_1 $(> \pi_c)$ than at the Nash equilibrium, and could achieve this by producing x_a if it could be certain that firm 2 would accept this and produce an output below x_c as given from $r_2(x_1)$, ie. if firm 2 would produce x_f. Firm 1 would not choose x_a given the model as discussed because it is not on $r_1(x_2)$; since firm 2 would choose x_c total output would be too high if firm 1 produced x_a (shown as Q in the Figure, which is above π_c implying a lower profit). One possibility would be Stackelberg leadership if firm 1 could register its choice first. Alternatively, firm 1 needs some means of informing firm 2 that it can and will produce x_a. An export subsidy would have this effect: by reducing firm 1's costs it would effectively shift $r_1(x_2)$ outwards to $r_1(x_f)$. Thus the firm with the subsidy can credibly threaten to produce more and the other firm will acquiesce and reduce its output.

The Conditions for a Strategic Subsidy

The formal model of the use of export subsidies to switch profits from foreign to domestic firms is expounded by Brander and Spencer (1985) but it is sufficient here

to present the arguments in an informal manner. The argument of concern is that an export subsidy is a precommitment allowing domestic firms to increase their share of the market and, therefore, their profits. The central requirement is that an export subsidy increases the profits to the domestic firm by more than the value of the subsidy. The additional profits to the subsidised firm have two components; first, the transfer represented by the subsidy and, second, increased profits due to a higher share of the market (enhanced if there are increasing returns). There is therefore a net gain to the domestic economy (although there may be an implicit redistribution from taxpayers to shareholders); consuming countries should benefit "... because part of the subsidy will be passed on in the form of lower final prices. In fact the combined benefit to consuming countries and the domestic country will exceed the cost to the other producing country. From the world point of view this policy is actually welfare improving" (Brander, 1986:30). The result holds only under special conditions.

First, it is essential that profits are switched from a foreign firm to the domestic firm receiving the subsidy. Given the requirement that the increased profits should exceed the subsidy cost, the principal characteristic is that the industry exhibits barriers to entry and, hence, existing firms earn monopoly rents. The subsidised industry must face foreign competition and, if the rival is to contract, conform to Cournot oligopoly as outlined above. The Cournot model is appropriate to auction markets and, generally, where prices are more flexible than quantities (Dixon, 1988:135) which is likely if industry capital requirements are large and inflexible. These basic conditions appear applicable to large overseas projects, but this in itself does not justify the subsidy. The existence of monopoly rents is essential, but not itself guaranteed by Cournot oligopoly, because otherwise the initial equilibrium would represent an efficient allocation of resources.

Second, it is required that the other firm (foreign country) does not retaliate by providing a matching subsidy; the initial subsidy is intended as a predatory strategy to gain first mover advantage. One can infer from Figure 3.1 that if both firms received subsidies they would over-produce and earn lower profits; the effect of the subsidy would then be to encourage an inefficient allocation of resources. A

subsidy is most effective if the domestic industry has cost advantages over rivals or, more generally, if increased output allows it to avail of scale economies. Effective subsidies target technology-intensive industries so increased exports enhance market position, facilitate technological developments and thereby confer external economies to the domestic economy, as the gains from new technology spillover to other firms, industries and consumers. Under these conditions the subsidy helps an efficient producer to become dominant, and the gains from retaliation are lessened if not negated. If these conditions are not met, there may be an incentive for rivals to retaliate, leading to inefficiency.

Third, it is important that prices do not fall too much. If subsidised firms produced too much and/or rivals did not contract enough, there would be inefficient over-production, prices would fall and profits may not exceed the cost of the subsidy, implying a net welfare loss. To prevent this the domestic industry must be at least as concentrated as the rival industries; the fewer foreign firms the more each is likely to cut its output while the fewer domestic firms the less one is likely to expand its output (Spencer, 1986:74). Extending this argument, if there are a number of competitive rivals, each may resist cutting its output in the belief that it can best survive a fight for market share, or alternatively because it believes it will be able to elicit support from its government.

Fourth, it is essential that the subsidised industry is not intensive in the use of scarce factors. A unit subsidy is less effective to the extent that increased industry rents go to factor inputs rather than profits; although the factor incomes are a domestic benefit, they will constrain the expansion of exports and therefore constrain the strategic gain. More importantly, the subsidised industry will increase its demand for, and remuneration to, these factors thereby increasing costs throughout the economy and, in this way, generating inefficiencies in resource allocation and reducing the international competitiveness of other firms. Domestic consumers will suffer as output is diverted abroad and oligopolistic firms increase domestic prices, which reduces domestic welfare. In this context there is a net welfare reducing redistribution from taxpayers to a group of shareholders.

To summarise, we propose a basic rule for identifying industries to which an export subsidy may be net welfare increasing: there must be very few rivals in an industry earning monopoly rents, the domestic firm must be capable of becoming dominant, suggesting that the subsidy need only be once-off, and the industry should not be intensive in the use of scarce factors. Even accepting the possibility of these conditions being met in theory, it remains very difficult to ascertain if firms meet these conditions in practice:

> the criterion for selection is how much extra profit could be shifted to the [domestic] firm from its foreign rival per unit of the scarce resource expended in doing so. This depends in a complicated way on the technologies of the domestic and foreign firms, on the degree of substitution between their products, on the price-responsiveness of demand in the export market, and on the nature of oligopolistic competition. Needless to say, the selection criterion ... would be difficult to implement in practice. (Grossman, 1986:60)

Grossman (1986:56-7) argues that excess profits in a market will not persist indefinitely and a subsidy will encourage domestic entrants; domestic welfare will suffer if there are too many entrants, so that scale economies are not realised or excessive competition drives down the price. The difficulty lies in identifying which industries have sufficiently high barriers to deter entry. A related problem is that the selection process would be politically influenced, the winners being established industries and "... those that could most easily overcome the free-rider problems associated with industry-wide lobbying ... leaving us with a set of strategic trade policies that would serve only the interests of those fortunate enough to gain favour." (Grossman, 1986:65). Even if industries worth targetting exist, the political system under which subsidies are allocated would distort implementation so that the wrong firms could benefit. This implication is salient to our later analysis, as it implies rent-seeking, and will be invoked again in Chapters 8 and 9.

3.4. Opportunity Costs of Tying

Even if tied aid were trade creating, either by strengthening trading links with LDCs or by increasing the market share of certain firms, it involves a domestic redistribution of income and reallocation of resources which may not be optimal; taxpayers may be willing to give money to LDCs but not necessarily to domestic

firms. A more general aspect is the opportunity cost: could taxpayers' funds used in tied aid have been better deployed in some other use? This issue is usually raised in impact literature in the context of the *displacement effect* which is comparable to the notion of crowding-out: the net impact on the donor is reduced to the extent that the demand for domestic inputs to meet the aided export displaces domestic demand that would otherwise have been realised. In their study of the impact of own-aid on the Irish economy, Fitzpatrick and Storey (1988) argue that the resource costs to Ireland from using labour and materials for overseas aid rather than to produce goods for use by Ireland actually outweigh the benefits of aid to the Irish economy. This conclusion is suspect because the authors did not account for the multiplier effects of increased exports while significant displacement is only likely in an economy at full capacity, which was not the case for Ireland (Morrissey, 1990d).

Love (1988; Love and Dunlop, 1990) made a commendable effort to allow for displacement effects in a study of the impact of a contract to supply gas turbines to China won by a UK company with aid support. He argued that the exports could not have been won without aid to counter rivals, ie. there was no substitution but a significant radiation (two unaided contracts were won). A questionnaire was sent to all the major sub-contractors asking if the particular orders had prevented them from meeting other orders and there was no evidence of direct displacement. It was argued that real domestic displacement requires that orders are lost to foreign firms (above normal demand for imported inputs) and could therefore only be significant for industries with high capacity utilisation and, even then, would be proportional to the industry import penetration ratio. The study demonstrates that displacement effects are probably negligible and there is no reason to consider this as untypical.

Table 3.1 presents some data on business expectations regarding export growth and perceptions regarding the major constraints. The years 1980 and 1984 are chosen as representative of the period of our impact analysis, and the industries listed are those which won aided exports (see Appendix A for definitions). There are two important conclusions. First, optimism about export potential increased for most industries over the early 1980s. Second, price competition and, to a much lesser

Table 3.1: Expectations on Export Growth and Constraints, By Industry, 1980 and 1984.

Industry	Export Growth		Constraints on Growth: Prices		Credit		Capacity	
	1980	1984	1980	1984	1980	1984	1980	1984
1. MOP	5	6	35	62	0	4	2	2
2. I&S	5	25	89	53	14	15	2	2
3. nMMP	3	20	91	80	0	27	10	10
4. Frt	0	32	60	75	6	13	5	36
5. Phm	9	29	40	42	8	15	7	12
6. Mtl	0	33	98	33	0	0	3	10
7. IPlt	38	51	98	95	1	21	12	18
8. AMch	2	59	23	61	35	40	6	1
9. TWMch	0	74	94	95	5	15	1	14
10. PMch	3	28	93	60	7	12	10	3
11. MCMch	15	22	98	64	3	11	6	3
12. OMch	5	48	70	77	4	6	3	5
13. OfEq	3	0	93	24	7	3	10	0
14. IW&C/ElEq*	21	12	95	91	31	5	3	4
16. TlEq/ECA*	11	20	45	32	0	6	3	6
18. Mot	7	33	81	90	15	4	3	3
19. Ships	8	5	97	96	57	0	58	0
20. OVch	19	65	68	30	4	29	16	3
21. InstE	3	56	88	37	26	13	9	9

NOTES AND SOURCES: All data are from Confederation of British Industry *Survey of Economic Trends* (January 1980, 1984, and 1985); Industries are defined in Table A.1; because of data, industries 14/15 and 16/17 were combined, as indicated, and * implies 1985 is used instead of 1984. Data are percentage of firms claiming: to be more optimistic about Export Growth than 12 months previously; that Price competition relative to foreigners is a constraint on exports; that the availability of Credit is a constraint; that plant Capacity is a constraint on the ability to increase output over the next four months.

extent, availability of credit were by far the most frequently cited constraints. Capacity constraints were not generally cited as an impediment to export growth; in those industries where they were, it is generally true that both export optimism and capacity constraints increased. This is consistent since expanding firms will be using more of their capacity. The data suggest that displacement effects were unlikely to be significant on aggregate.

There is a potential relationship between perceptions on price competitiveness and the availability of credit which, since the latter refers to export credit, insurance and finance, is most important for companies exporting to LDCs. Firms that believe rivals can avail of export subsidies would be expected to see this as a problem of prices and the availability of credit. Tied aid does not explain the data, but the worries encapsulated in these expectations and perceptions indicate why firms argue for tied aid to help (price) competitiveness and to provide export finance.

Displacement effects can be generalised as a form of *opportunity costs*; resources employed in one use, such as aided exports, are not avaliable for other uses, such as production for domestic demand. There is an opportunity cost if alternative uses could be more productive; there is no opportunity cost if existing uses are the best, or if resources would otherwise have been unemployed. If displacement is low there is an expectation that opportunity costs are low and, beyond this, little can be said. The problem is not simply in identifying the alternative opportunities but also deciding on how to measure the benefits. For example, to assess the opportunity cost of using tied aid to increase domestic welfare, we would have to resolve all the problems of Sections 3.2 and 3.3, and carry out the same exercise for alternative uses of the funds. An obviously daunting task (but see Chapter 9).

3.5. Assessing the Net Economic Effect of Tying

We have demonstrated that numerous factors need to be considered in assessing the net economic effects of aid. A useful starting point to a full framework is Mosley's (1987:214-5) list of six elements in the export benefits of aid. His first four are, using the terminology set out earlier: direct exports, radiation effects, induced

exports and reflection. These measure the gross expansion of exports and, to get at the net effect, one should deduct the switching/substitution element and any export displacement effects (his last two factors). Of these, only direct exports can be measured with any degree of confidence. To arrive at net economic effects we would also wish to examine the nature of the industries, the price and resource allocation effects and, hence, the ultimate effect on donor and recipient welfare.

The aim of this thesis is to measure the commercial benefits of aid - the direct and indirect impact of aided exports on gross domestic economic activity. We envisage a specific use for this measure as an indicator of business interests in the aid budget and of how well these interests are served by the budget and changes therein. The objective of this chapter has been to demonstrate that commercial benefits are not equivalent to net economic effects, and to identify a range of issues that must be acknowledged in evaluating any measure of benefit. Factors influencing the net economic effects demonstrate that there are issues of concern to the government, in determining the aid budget, above and beyond commercial benefits. The issues concerning net economic effects indicate areas of debate which act as a restraint on the influence of business groups. An example is useful.

In arguing the virtues of the Aid and Trade Provision, business groups normally cite the considerable commercial benefits and then assert that the orders would not have been won without aid support and that there were radiation effects. Thus, they try to circumvent some of the trade creation arguments. This line of argument seems to have been accepted by officials in the Department of Trade and Industry involved in export promotion. On the other hand, officials within the Treasury will be concerned with minimising public spending and will scrutinise export subsidies in terms of their probable net economic effects. Furthermore, officials in the Overseas Development Administration will be more concerned with the effectiveness of aid in the recipient countries. We will argue that the relative ease in measuring commercial benefits gives business interests a bargaining advantage, but this is insufficient to ensure an effective influence on government policy.

CHAPTER 4. TRENDS IN THE UK AID BUDGET 1978-89

This Chapter reviews developments in UK aid policy over the period from 1978 to 1989 (the latest date for which full data are available), as reflected by changes in the aid budget - its composition between different forms of aid; the sectors in which projects are supported; its geographical allocation and the relative poverty of the LDCs receiving aid. Since the theme of the thesis is the commercial benefits from aid, special attention is paid to the role of business interest groups, in particular their input into decisions on the composition and allocation of the aid budget. There is a perception that British aid has increasingly been directed towards commercial interests at the expense of development objectives, fuelled by the rhetoric of government statements and the introduction of the ATP. We term this the commercialisation of aid, that more emphasis is now placed on export potential, and ask to what extent *have* business groups influenced aid policy. No attempt is made to define aid policy *per se* and attention is focused on the aid budget which can be defined and largely measured so that changes are visible. [1]

In Section 4.1 we discuss the objectives of aid, distinguishing political, commercial and development considerations, its position within public policy and the political determinants of the allocation of aid. Section 4.2 turns to internal politics and describes the role of pressure groups in influencing the aid budget, arguing that the business lobby is likely to be more influential than the development lobby. There is an apparent digression in Section 4.3 which reviews the origin and administration of ATP. However, we will argue that this development encapsulates the debates between different lobbies, while the discussion allows us to elaborate on the essential administrative features of the aid budget. Changes in the aid budget are reviewed in Section 4.4, which presents statistics on composition and allocation. Trends in UK aid are compared with those of other donors in Section 4.5. The summary and conclusion is in Section 4.6.

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1 A few definitions are required: policy-maker refers to active participants in the dialogue with the government about aid policy; decision-makers are those who actually decide on details of policy, generally Civil Servants with the Cabinet as the ultimate authority. The budgetary process is the dialogue between policy-makers and decision-makers on the general form of the aid budget.

4.1. The Objectives of Aid Policy.

Aid is not, and has not been, a major element in British public policy, being often implicitly viewed as an element of foreign policy, and the aid budget is only a minor part of government expenditure (roughly one per cent throughout the 1980s). Nonetheless, it has important ramifications for Britain and three general objectives can be identified. First is the commercial objective whereby aid is used to support exports by British companies. Second are the political objectives of generating goodwill and influence for Britain in LDCs; that these are important is evident in the central role of the Foreign and Commonwealth Office (FCO). Finally, the development objective is ostensibly the prime purpose of aid, to promote economic growth and increase welfare in the poorest LDCs. In deciding on the annual aid budget, the government has its own ranking of these objectives and must also respond to lobbying from interest groups favouring particular objectives.

The British government is constrained, by relatively fixed commitments to multilateral aid agencies (MAAs) and to some recipient countries, in the extent to which it can alter the aid budget in any given year. In 1981, 'unavoidable' commitments represented up to 60 per cent of the aid budget (Horesh, 1984:114). Within these external constraints, the composition of British aid can be seen as arising from a decision-making process to reconcile the three objectives, which often conflict but occasionally reinforce each other. Broadly speaking in this process, development issues are represented by the Overseas Development Administration (ODA) supported by a number of charities and NGOs; commercial interests are promoted by the Department of Trade and Industry (DTI) with the backing of business lobbies, and the FCO takes responsibility for global political aspects. All three act in concert on at least one issue, that the size of the aid budget be increased, and on this they are opposed by the Treasury as guardian of government expenditure.

The broad emphasis of aid policy has been heavily influenced by international factors, in particular the strategy of the World Bank and IMF. In the early 1970s the World Bank promoted growth with redistribution and the targetting of aid on the poorest people in the least developed countries; this was recognised as UK policy in the 1975 White Paper (Ministry of Overseas Development, 1975). In the 1980s,

largely in response to the 'neo-classical counter-revolution in development economics' (Toye, 1987), both the World Bank and IMF have supported structural adjustment. This has been reflected in increased UK emphasis on programme aid for structural adjustment, an issue we do not discuss.

The Government's perception of how aid promotes development, and indeed of what development means, influences how it reacts to international trends and affects the status of lobbies, making the Government more responsive to the arguments of one rather than another. From the 1975 White Paper it appears that the last Labour Government held a view consistent with the development lobby. British aid was to be targeted on the poorest people in the poorest countries since development means improving the welfare of the most impoverished. This had direct implications for the budget as aid was to be allocated to agriculture, irrigation and rural development (Jay, 1977). The trends in the aid budget in the late 1970s reflected these desires, going more to the rural areas in the poorest countries (Independent Group on British Aid, IGBA, 1982).

The shift in emphasis towards targetting the poorest was part of a global trend, and Britain was following the lead of others "... we and other aid donors are now adapting our aid policies to give more help to the poorest countries and the poorest people within these countries" (Ministry of Overseas Development, 1975). This poverty-focussed strategy was also in line with World Bank thinking, which Yudelman (1976, cited in IGBA, 1982:8) dated to 1973 when the Bank decided to focus on poverty through projects to benefit the rural poor and increase the output of small farmers. Economic growth *per se* was no longer considered adequate to reduce poverty; insufficient wealth actually managed to 'trickle-down'.

The extent to which policy did change is debateable. Elliot (1976) argues that the White Paper was predicated on the belief that scarcity of resources, rather than exploitative relationships, is the fundamental cause of poverty; economic growth remained an effective and desirable strategy. Furthermore, promoting income redistribution and a rural focus had implications for economic and political relations in LDCs, and Britain was reluctant to press its views on LDCs (Horesh, 1984:115)

which posed a dilemma regarding "how to offer but not to prescribe the right medicine, to make available what is best for the recipient, to be sure that it is his choice *and* that he chooses right" (Gee, 1976:39, original emphasis).

The weak commitment to the policy-shift was evident in the absence of any Government directives on how help to the poorest should be implemented (IGBA, 1982:9). The accession of the Conservatives to power under Mrs. Thatcher in 1979 coincided with an international trend towards neo-classical, market-oriented, economics which argued that the route to development was through export-led growth, trade liberalisation and de-regulated markets. This view sat comfortably in the economic ideology of a government sympathetic to the argument that aid encouraged laziness rather than efficiency; we have no evidence that they endorsed this view, but it made it easier for them to impose large cuts on the aid budget, which they did, and supported a shift away from the emphasis on the poorest. The Minister for Overseas Development in 1980, Mr. Neil Marten, said in a Parliamentary Statement on 20 February:

> We believe that it is right at the present time to give greater weight in the allocation of our aid to political, industrial and commercial considerations alongside our basic developmental objectives.

The Thatcher government marked a shift towards an aid policy more compatible with business views but this does not in itself imply that the business lobby became more influential. Thatcherite economics seemed to argue that only inefficient firms asked for State help; if tied aid was an export subsidy Mrs. Thatcher would not have been sympathetic to business arguments. Nonetheless, throughout the 1980s Ministers for Overseas Development were vocally supportive of business interests:

> Most [businessmen] recognise that the aid programme is there to benefit developing countries. Many also believe that what they have to offer does promote development ... it is unrealistic for the IGBA to believe that donors should not take account of any political and commercial considerations. Nor does it help to imply that anything that brings benefits to British industry, or brings political goodwill, can't by definition be 'real aid'.
>
> (Mr. Chris Patten, in ActionAid, 1987:9)

The government saw no conflict between various objectives of aid and could claim to promote development while furthering commercial interests, but was reluctant to directly assist companies. The DTI did not suffer from the same constraint and fostered a close sympathetic relationship, viewing itself as a partner to business. The then Minister for Trade, Mr. Alan Clark, argued that ATP should be brought fully under the control of the DTI, which should have greater control over the entire aid budget based on recognition of profit and advantage (*Guardian*, 15.7.87). The Foreign Affairs Committee (FAC, 1987) also took the view that the DTI should control ATP, but because ATP was not consistent with the purposes of aid.

Influences on the Level of the Aid Budget

In the 1980s the British gross aid budget has fallen from about 0.4 to 0.3 per cent of GNP, compared with an international target for developed market economies of giving 0.7 per cent of GNP in aid. Scandinavian countries have mostly exceeded this target while Britain is below most European countries but above Japan and the USA. Although this provides a useful benchmark, it says nothing about the effects of aid, either domestically or for recipients. While there is pressure to match the generosity of other donors, this is tempered by domestic interests and the ways in which other donors promote their commercial interests.

A number of studies have tried to analyse the factors determining the size of the aid budget. In an exploratory analysis subject to unresolved econometric problems, Beenstock (1980) found that the volume of a donor's aid was positively correlated with lagged aid, GNP, and the balance of payments, but negatively correlated with population, unemployment and the net budget surplus. The decline in the real value of UK aid in the early 1980s is therefore consistent with a period of high unemployment and slow growth, and we could generally expect aid to increase as an economy grows and its trade balance improves so it can more easily absorb the outflow of money. Beenstock interprets the net budget surplus as a measure of fiscal rectitude, so that a higher surplus means tighter spending and less aid.

A similar model has been proposed by Mosley (1981, 1987) in which aid is related positively to existing commitments, the volume of aid given by other donors and

the perceived need of recipients, but negatively to unemployment and the net budget deficit. Econometric analysis supported the negative coefficient on unemployment and positive coefficients on commitments and other donors. The coefficient on the budget deficit was expected to be negative as the deficit was interpreted as a measure of the pressures for cutting spending; the coefficient was significant, and negative, for only one of the nine donors tested (Mosley, 1987:78). Perhaps most importantly, he concluded that the UK and Canada, unlike other donors, responded to public demands to increase aid by trying to improve its quality. The models suggest that falling unemployment and rising GNP would permit increased aid although, given the trade deficit, there would be strong pressure for tying it.

4.2. Pressure Groups and Aid Policy

We will find it useful to classify groups into insiders and outsiders as a means of selecting those we expect to be influential. In the conventional view, insiders are officially recognised as representative of their members and are granted direct access to Whitehall departments, cultivating close contacts and regular dialogue. Outsiders, because they represent a heterogeneous or weakly defined membership and/or campaign on fundamental issues, are not granted direct access and are more likely to appeal to Westminister and the public (Jordan and Richardson, 1987:30-40). The obvious implication is that insiders have more influence so their views are more likely to be incorporated in policy. Two factors are consistent indicators of the status accorded to a particular group. First, the homogeneity and uniformity of the views of their membership. Second, the ability of the group to pose threats or sanctions to the government, or to identify a visible cost to members from a particular policy, or from the non-adoption of a policy. Homogenous groups which can make effective threats are the most likely to be influential insiders.[2] We will argue, after describing the competing lobbies, that business groups tend to be insiders while the development groups are more likely to be outsiders.

The Business Lobby and Aid

The views of business groups on aid will depend on the nature of their relationship

2 A further factor is the involvement of the group in implementation but this is beyond the scope of our analysis. We acknowledge that the ultimate effects of aid policy, and the extent to which it meets any objectives, depend crucially on implementation in LDCs.

to aid and there are three basic categories: large exporting firms for whom aid in relatively large volumes can be very important; smaller firms who could benefit directly from aid, in relatively small volumes, if it assisted their export drive, or who benefit indirectly from sub-contracts; and consultants, for whom aid support can be vital. The aims of a lobby are identified with their statements on aid and representative bodies, the Confederation of British Industry (CBI) in the case of smaller firms, are taken as the voice of the lobby.

The Major British Exporters

Large firms in the contractor industry, comprising construction and engineering, have the strongest vested interest in aid because of the importance of LDC markets and the availability of aid support to foreign competitors (see Chapters 6 to 8); between 1978 and 1984 such firms won almost three quarters of all UK exports supported by aid. It is natural that the firms most likely to have a share in LDC markets will be large exporters. The single most important factor in winning overseas orders is a local presence and only the largest firms can afford the overhead costs involved, but aid support is often cited as being equally important.

Large exporting firms constitute a relatively small, homogenous group and although the importance attached to different types of aid may vary, their fundamental interests are held in common. All agree that the aid budget should be used to further commercial interests by supporting their market share in LDCs. They claim that the benefits from aid-supported exports are commercially significant (see Chapter 3). By implication, there is the effective threat of an economic cost, in terms of lost output, if aid is not used to support British firms; the potential benefits of tied aid are visible, largely measurable and effect a small group directly.

The high degree of concentration in UK industry and the strong ethic of 'individualistic enterprise' has encouraged direct contact between individual firms and government; since the 1970s this principle (of bottom up consultation) has been accepted by government and civil servants with some success (Grant, 1987). For the major firms, close personal contacts with government are the principal means of expressing their interests. Large exporting firms have direct access to decision-

making within the DTI[3] through representation on the British Overseas Trade Board (BOTB) which was set up in 1972 to advise on overseas trade and the official export promotion programme and has membership of about half from industry, others from the civil service and commerce. The Overseas Projects Board (OPB), set up in 1977 as a separate group within the BOTB framework, is more directly concerned with aid:

> The Overseas Projects Board ... serves to give government an understanding of industry's views... [regarding] government policy in relation to major overseas projects, ... the selection of one company or one group of companies to put forward the most effective national bid [and] the provision of assistance under the Overseas Projects Fund and the Aid and Trade Provision. (Overseas Projects Board, 1988:3)

The OPB had ten members in 1988, seven from major firms, three among the firms that were the largest beneficiaries from ATP (see Chapter 8), and three from commerce. Its views are those of the Major British Exporters, a group of some thirteen of the largest contractors, established in 1985 and encompassing the OPB, and are set out in annual reports reviewing Britain's performance. It stresses the importance of winning overseas projects, in terms of the direct contribution to the export drive and the indirect benefits of the impact of increased output on the UK economy. "The Board would like to see an overall increase in the aid programme, enabling the bilateral aid programme to be increased without affecting our commitments to the multilateral development agencies." (OPB, 1988:9)

The Export Group for the Constructional Industries (EGCI) represents the major overseas contractors and its membership overlaps with the OPB. Its views on aid are set out in a number of papers by the Director General, Mr. Peter McGregor, which emphasise the underlying need for aid support because of the extensive aid budgets of other donors. The significant reduction in the real value of tied bilateral aid in the early 1980s imposed a large cost on British exporters in terms of lost orders; the UK should give more tied bilateral aid both in volume terms and relative

3 Major companies also tend to have close connections with the Tory party. Some 15-25% of the 1000 largest firms contribute to political parties (Grant, 1987:183). Of more importance, leaders of contractor firms are the most likely to have close personal contacts with the Conservative party.

to multilateral aid, which took an increasing share of the total budget in the early 1980s yet confers less commercial benefits (McGregor, 1985). Britain should increase its allocation of ATP which is the most effective form of aid for generating exports (McGregor, 1987).

McGregor's statements represent the views of the EGCI and are supported in tone by statements from individual companies (HSPE, 1986; NEI, 1988; Pick, 1983) and the OPB (1988). We thus infer that the input of the large exporting firms into decisions on the aid budget, through direct contacts by individual firms, the two Board's, the Major British Exporters and the EGCI reinforcing each other at various levels, has been to promote an emphasis on the commercial benefits of aid and argue for increased tied bilateral aid and ATP. Direct contacts by firms and these groups are reinforced by the circulation of policy statements and studies of the impact of tied aid (previous references) to the DTI, ODA, Treasury, Department of Employment and Parliament. The companies believe these studies to be an effective element in influencing decision-makers and mobilising support.

The Confederation of British Industry

The CBI aims to represent the full range of business interests, with membership including financial and advisory services and public corporations, but is predominantly an umbrella body for manufacturing (Grant, 1983). It claims that policies are decided by members in a largely bottom-up process so that it speaks for all sizes of business. On most issues, however, it is likely to reflect the views of larger members; coverage of small firms is patchy and policy is usually determined in specialist committees which tend to be dominated by larger firms. In fact, "It is the CBI's apparent ability to speak for these major companies in a highly concentrated economy that is the main source of its influence with government." (Grant, 1987:120). As a lobby, the CBI is most effective when advocating interests common to the vast majority of its members, or held by a significant cohesive group within industry. In the latter case the group itself probably has direct access to the government and the CBI is only adding its voice. In this way, one may question the influence of the CBI itself since its membership is obviously heterogeneous. Its views on aid are fairly clear:

> The CBI's view on aid is that it should be 'increasingly devoted to projects of benefit to Britain's trading interests'. In particular, it should be increasingly tied, switched to non-Commonwealth countries where there are 'commercial and investment opportunities' and concentrated more in infrastructure projects in countries which are 'rich in natural resources but lacking in communications'. (Cable, 1982:188)

The basic CBI view has not altered much during the 1980s, although more emphasis is now placed on development issues, partly in response to criticisms of the commercial orientation of aid; a Green Aid budget is also advocated. The CBI sees no conflict between commercial, development and political objectives; while recognising that early ATP projects may not have met development needs, it argues that the ODA now ensures that projects financed from British aid are carefully appraised against development criteria. Tied aid is seen as a means of export promotion and as the only means in many markets of increasing commercial and political links, and ATP is favoured as the most effective means of achieving these aims (CBI, 1990).

Confederation policy on aid is determined largely by EXPROM, the Export Finance and Promotion Committee within the International Affairs Division of the CBI. EXPROM has 35 members of which almost half are from industry and almost a quarter from commerce; four trade associations are directly represented and a further eight receive EXPROM papers. Seven large firms are members, three of which were large beneficiaries from ATP. More importantly, three of the six members of the Aid Working Group are large firms, two among the large beneficiaries from ATP. There is a close correspondence between CBI aid policy and that of the OPB and major firms; it is not unfair to argue that the CBI is not so much developing a policy as seeking the evidence to support its views on aid. The major exporters with the strongest interest in tied aid are the loudest voice within the CBI, which provides extra research to back their lobbying.

Small and medium sized firms are unlikely to have direct contacts with the government and their interests are represented by trade associations. The vast majority of these firms only benefit from aid indirectly and through sharing in the

general increase in economic activity resulting from export orders. Their interest in aid policy is closely allied to that of major exporters and, on this issue, they rarely lobby in their own right but leave it to the 'big boys'. Trade associations in the contractor industry are closely linked to the major firms and adopt a similar policy on aid. However, many small specialist firms could expand exports if they had better access to tied aid and if the aid budget was targeted away from major exporters; business interests are not identical to the interests of major exporters but the latter, being insiders, are the most influential.

Consultants

Consulting Engineers are directly concerned with aid policy since LDCs account for over a third of their overseas business and they are internationally very competitive. In the 1980s roughly a third of consultancy contracts in LDCs resulted from 'direct-targetting' (Mansfield, 1987b:1228) where the firm itself identified a potential study and approached the host government. In these situations aid support is essential and the consultants are unhappy with the way in which British aid has failed to meet their needs. The cost of a major feasibility study is very high and can only be borne by large firms; given the low success rate of turning a study into a design contract, even the large consultants argue for support if they are to compete widely, although they generally favour multilateral aid and believe they would have a higher market share if there was no tying (worldwide).

The British Consultants Bureau (BCB), of which engineers are slightly less than a third of members, argues for more aid support to consultants, especially small firms. They point out that the Overseas Projects Fund is only suitable for funding consultancy as part of a design/finance/construct package since British contractors want guarantees. They believe ATP funds should be used to finance 80 to 100 per cent of studies where no guarantee can be made, noting that other donors offer 'untied' aid of this form. They argue for more support to medium and small firms, noting that specialised firms are often very competitive but cannot afford the costs of investigating LDC markets, through the aid budget and FCO and ODA overseas trade missions.

The Development Lobby

The development lobby covers a disparate spread of interests and in many respects lobbies on fundamental issues, the proper way to promote development and alleviate world poverty and inequality, and has mobilised business counter-pressures. It is exceedingly difficult for the lobby to claim that its members will 'lose' if particular policies are adopted; more importantly, perhaps, its interests cannot easily be represented as economic or political gains to the UK. For these reasons the Government can afford to overlook the development lobby, which becomes an outsider and therefore operates by appeals to the public and Westminister. It has had some success in the latter and the report of the FAC (1987) was broadly sympathetic to the arguments of the development lobby.

The demands of the development lobby, except that for more aid, generally conflict with the business lobby. The root of the conflict is that they consider an export-oriented aid policy inconsistent with humanitarian objectives. Economic growth does not measure development and effective aid would be concentrated on the poorest countries and on the poorest people within these countries. This strategy demands a focus on rural development, agriculture and public projects (see IGBA, 1982). The emphasis is on untied bilateral aid, which permits business groups to argue that such a policy would impose a cost by way of lost exports.

Pressure Groups and the Aid Budget

Decisions on aid are constrained and pre-empted by international pressures; within these bounds, the Government is subject to pressures from representatives of commercial and development lobbies, and has its own political interests. Table 4.1 identifies the principal interest groups involved in the domestic aid budgetary process and lists the main demands of each. We treat political objectives as being the concern of the government and not represented by interest groups; this does not deny that some groups may share the political objectives of the government.

Business is well connected to Whitehall decision-makers. The major exporters are inside the DTI framework through the BOTB and OPB, and dominate other insider groups. The largest companies have direct individual contact with senior members

of the Government. The principal business groups also appeal to Westminister and the public through policy documents and press statements. The core demand is that the aid budget should be guided by commercial considerations so that it has an export orientation; the size of the aid budget should be increased by allocating more funds to ATP and tied bilateral aid. This orientation implies that aid should be directed to capital projects in the richer LDCs.

Table 4.1: Interest Groups and Demands on the Aid Budget

OBJECTIVES	COMMERCIAL	DEVELOPMENT	POLITICAL
LOBBIES	Business	Development	
Insiders	BOTB, OTB, EGCI, CBI, BCB		
Outsiders	small firms consultants	charities NGOs, academics	
DEMANDS	tied bilateral ATP export focus	untied aid multilateral poverty focus	bilateral political focus
projects	capital fewer LDCs rich LDCs	rural, social fewer LDCs poor LDCs	visible many LDCs

NOTES: The status accorded to lobbies refers only to the budgetary process and groups may be insiders in other aspects of aid policy, such as non-Government Organisations (NGOs) in implementation. No lobbies are attributed to political objectives which we treat as represented by the government, in particular the FCO.

The implicit links between the organizational factors in the aid budget and the biases of aid are concisely set out by Wyse (1983: Table 8). He points out that tied aid, with Western development models and the need to demonstrate success by visible evidence, biases aid towards capital-cost rather than recurrent-cost projects on a large scale (easier to administer) and with high foreign cost components. The combination of tying and familiarity with western technologies (which all business groups encourage in ODA and FCO officials) favours complicated technical solutions, implying a need for foreign components, rather than simpler and often more appropriate technology. The use of western technology, furthermore, is more likely to create a long-term dependence on western exporters for supplies and maintenance. While intensive technologies do fuel economic growth, they tend to do so in an uneven manner, which increases inequalities in LDCs, and often transpires to be unsuitable (Burch, 1987:178). The desire for visible capital projects biases aid towards the market sectors in LDCs and a tied aid strategy will be most effective, in terms of generating exports, if the richer LDCs are targeted. These considerations determine the commercial objectives and do conflict with development objectives (this does not imply that achieving one set of objectives necessarily precludes the others; practical outcomes are usually compromises).

Political interests are those of the Government to ensure that aid promotes influence and goodwill in LDCs (Wyse, 1983:16, lists a number of ways in which aid promotes foreign policy objectives). The FCO has an implicit objective to maintain a sphere of influence; spreading aid over a wide number of countries, including all Commonwealth LDCs, is a means of doing this. The political gains are also likely to be greater if projects financed by Britain are visible, which tends to favour large capital projects. Having identified the principal objectives, the major pressure groups and their demands, we can relate these to changes in the aid budget and draw inferences on the influence of lobbies (Section 4.6).

4.3. The Origin of the Aid and Trade Provision

Being the flagship of commercial objectives, ATP deserves detailed examination. In the mid-1970s large UK companies, notably British Leyland and British Rail Engineering (BRE), supported by the CBI, lobbied for aid-support for commercial

contracts in LDCs to counter foreign competition (Toye and Clark, 1986). The Government was made aware that UK firms were losing orders because competitors from other donors could avail of mixed credit packages. A Working Party on Aid and Trade (WPAT) was established in 1977 to choose the form of aid support most appropriate to help UK firms counter such competition. The WPAT disapproved of mixed credits for reasons that have since been used against ATP (Cassen, in FAC, 1987:122; Toye and Clark, 1986; Toye, 1991).

First, given their commercial motivation, mixed credits tend to direct aid to richer countries. Second, the distinction between aid and credit is blurred when both are combined. Third, competition is distorted and an escalation in the race for credit is likely. This is contrary to the objective of restraining credit competition agreed by all credit giving countries (Byatt, 1984). Furthermore, Britain is less well placed than its competitors to benefit from any such escalation, a view reiterated by the Minister for Overseas Development, Mr. Neil Marten, in 1980: Britain should not encourage a credit race "because we would not win it" (Sutton and Hewitt, 1982:31). These criticisms have been vindicated by ATP (Chapter 8).

The WPAT did not favour a general policy of mixed credit but recognised the need for some aid support and proposed using mixed credit in cases where normal aid is inappropriate. The new aid should be targeted on commercially beneficial projects where there is evidence of aid-supported foreign competition. The WPAT laid down basic guidelines for the Aid and Trade Contingency Provision, later renamed ATP, which have changed little. ATP was not to exceed five per cent of Bilateral aid initially and could not be used for military or luxury goods. Although it was stated that ATP would only go to relatively poor countries with an acceptable human rights record, the definition of poverty, in terms of GNP per capita, was almost high enough to include Greece and Portugal. All of these guidelines have been broken (MacQuaide and Toye, 1986; Chapter 8 below).

There were two specific objectives behind ATP, both reflecting business lobbying. The first was to introduce more commercially important projects into the aid programme. The second, to allow British firms match the mixed credits available to competitors. At its inception, ATP was to be granted only where there was foreign

competition; this was difficult to verify and the condition was quickly relaxed. The Department of Trade specified that ATP would be granted only if aid was required to obtain an export order and the value of business generated exceeded twice the ATP cost or related to labour-intensive products.[4] Companies could apply for ATP only if they could demonstrate actual or potential foreign competition. In 1980, Mr. Neil Marten announced two fundamental changes in aid policy; greater weight to be given to political and commercial considerations and the unallocated aid margin to be increased (Sutton and Hewitt, 1982). This implied greater use of ATP and providing the budget to do so, and it was made available for projects initiated by UK companies. The ATP budget, as a share of Bilateral Aid, doubled between the early and mid-1980s (Table 4.3 below).

The WPAT stressed the development aim that bilateral aid be targeted towards the poorest. It was intended that this apply to ATP, but the guidelines on the criterion of 'minimum development soundness' were vague. Projects had to be of 'minimum economic adequacy' and need not be targeted to the poorest income groups. Investment expenditure should be cost effective and represent a reasonable allocation of recipient's resources (this criterion is of less importance the lower the ATP share in the project). Aid funds should be costed at their full opportunity cost to both the recipient and the development aims of the aid budget. The suitability for development of the goods and services involved in the project should be evaluated in the context of the economic management and social policies record of the recipient and also its technical, managerial and financial capacity. Ex-post monitoring of projects was introduced to ensure the proper use of funds.

While ATP has overt commercial objectives monitored by the DTI, it should have been constrained by the development requirements monitored by the ODA. The emphasis on development has depended much on the view of the respective Ministers. We have already indicated that Mr. Marten and Mr. Clark gave priority to

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4 The DTI proposed to measure export business as the value of goods and services directly financed; additional goods and services purchased as part of the contract but not aid financed, and contingent future non-aid financed exports (given the size and expected growth of the market, the availability of future export credit cover and the competitive position and supply capacity of the UK firm). Labour intensive was defined as one person-year employment per £15,000 of exports.

commercial interests; Mr. Chris Patten, the Minister for Overseas Development from September 1986 to July 1989, appeared to be concerned with development, stressing four main reasons for aid - political, commercial, humanitarian and development: "If one puts too much emphasis on any one of the other three reasons, it seems to me that one may well distort the developmental objective, which ... is assigned to us statutorily" (Mr. Chris Patten, FAC, 1987:140). He did not wish to stress commercial objectives, believing that many could be attained without aid money, but concedes that if British aid is financing imports by LDCs, it is reasonable that the imports be British.

Mr. Patten's successor, Mrs. Lynda Chalker, seems to have adopted a similar position: "... the Minister emphasised that not only did aid represent sustainable economic and social development ... but also that aid could benefit British companies [and] the Minister felt sure that, were bilateral aid untied, Britain would be the major competitor" (report in *British Overseas Development*, September 1990, p. 3). In contrast, Mr. Nicholas Ridley, while still the Trade Secretary, was an adamant supporter of tying and generated controversy by insisting at cabinet level that a credit to Nigeria should be fully tied, contrary to the free-market aspirations of Mrs. Thatcher (*Guardian*, 21.6.90). Of comparable importance with the views of the Ministers is the influence of the two departments.

The Administration of ATP

The administrative structure of ATP has not altered much since 1978 and is based on the inter-departmental Sub-committee on Aid and Trade (SCAT). In principle, the ODA must evaluate the proposal and verify the development value before SCAT can recommend ATP.[5] In practice, the ODA has been under pressure to conduct its evaluation quickly and, in consequence, often superficially (FAC, 1987; National Audit Office, 1990). Requests for ATP funding are made by companies to the DTI which presents them to the SCAT, which has representatives from the DTI,

5 The criteria employed by the ODA are: is there a market for the output; how should the goods and services be supplied; is the recipient institutionally capable of executing the project; are the recipient's policies, such as pricing and supply, consistent with the project's objectives; is the project and its maintenance affordable and can debts be serviced (FAC, 1987:23-4). An attempt is made to assess the financial return and whether resources are being efficiently deployed.

ODA, FCO, Export Credit Guarantee Department (ECGD), Treasury and Bank of England. Final approval must come from an FCO minister, preferably the Minister for Overseas Development, and disbursements are administered by the ODA.

The ODA has a procedure and set of criteria for evaluating development potential and is proud of its record on the Bilateral Country Programme. These cannot always be used effectively for ATP since projects are selected for commercial reasons and require quick decisions. The ability to evaluate proposals has been eroded by government spending cuts and rationalisation of the ODA: from June 1979 to September 1981, staff were reduced by 17 per cent; geographical offices were cut from nine to seven; advisors who had worked in small disciplined units were regrouped into two large divisions and a number of joint FCO/ODA units were formed, notably for economic planning, rendering ODA more subservient to FCO policy (Sutton and Hewitt, 1982:24-5). It has been argued that these changes and the need to appraise quickly without necessarily visiting sites or contributing to project design have reduced the performance capacity of the ODA, a claim the department rejects (FAC, 1987:25).

To obtain ATP, a company applies to the DTI regarding a contract it is initiating or competing for and, on the basis of information provided by the company, the DTI decides if the commercial criteria will be met; if so, ATP will be recommended pending ODA and SCAT approval. The company could use this recommendation in its bid but it is no guarantee of success. In the period 1977-80, of the ATP cases proposed to SCAT, about two-thirds were approved but only one-third resulted in contracts (MacQuaide and Toye, 1986, Annex 5). The take-up rate is now around 66 per cent for negotiated contracts and 25 per cent for competitive bids, which still works out at about a third. While business groups argue that the DTI should make more recommendations so that take-up accounts for the total budget, the DTI responds that problems are due to the time required by LDC governments to decide; the normal take-up on outstanding awards would absorb the available budget.

The ATP provided the DTI with a greater input to aid policy and led to conflict with ODA. In the view of the DTI, the aid programme should be based on mutual

benefit: there must be a development potential but the gains to the UK should be maximised.[6] This viewpoint allied DTI with business groups. The ODA may have considered themselves as protectors of the policy of helping the poorest but, by the 1980s, were under external and internal pressures to increase the commercial focus of aid. This inherent conflict is reflected in many of the developments in aid policy during the 1980s.

4.4. The UK Aid Budget 1978-1989

It can be inferred that a lobby has some influence if the policies adopted conform to its demands. Insiders will tend to hold a set of values similar to the Government, and the appearance of policy conforming to these values is not itself indicative of influence; the exercise of influence will be shown by gaining specific concessions. The introduction of ATP was a concession to business interests and represented both influence and a strengthening of their insider status, as the DTI gained an enhanced role in determining aid policy.[7] There are many instruments of aid policy and the composition of the aid budget can include concessions to various lobbies or off-setting measures, reflecting the relative influence of lobbies.

The Size of the Aid Budget

The aid budget was treated in a bipartisan manner from its inception in 1964 until 1979; changes in government, from one party to another, had only minimal effects on the budget and the objectives, and aid tended to be sheltered from cuts in public spending (Horesh, 1984:110). This changed under the Thatcher government from 1979 when the aid budget was severly cut. The real value of aid in each of the years 1978 to 1989 is given in Table 4.2. From the high of 1979, inherited from a Labour government, to the low of 1987 the real value of aid fell by 23 per cent; the fall has been offset slightly in recent years to 7 per cent over the decade.

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6 The criteria for gains to the UK are: gearing, UK value added per £1 of aid; additionality, benefits that would not otherwise occur; leverage, control over aid disbursement; and flexibility, being able to allocate to new recipients and programmes. ATP is the DTI's most favoured form of aid because it maximises gearing and additionality (evidence to FAC, 1987:77-92).

7 Note that it was a Labour government that introduced ATP. This is not surprising since Labour were traditionally willing to assist industry in general (Grant, 1987). It was a Conservative government that oversaw the evolution and application of ATP (see Toye, 1991).

Table 4.2: Value of British Aid, 1978-89, in 1989 Prices

	Gross Aid 1989 prices		UK Aid as a percentage of			DAC Aid
			CGCE	GNP	DAC	% GNP
	£m	Index	%	%	%	%
1978	1806	101	1.38	0.48	7.4	0.35
1979	1918	107	1.44	0.52	9.3	0.34
1980	1666	93	1.21	0.34	6.7	0.37
1981	1831	102	1.28	0.43	8.6	0.35
1982	1559	87	1.06	0.37	6.5	0.38
1983	1602	90	1.06	0.35	5.8	0.36
1984	1717	96	1.11	0.34	5.0	0.36
1985	1635	91	1.01	0.34	5.3	0.35
1986	1613	90	0.99	0.31	4.8	0.35
1987	1472	82	0.88	0.28	4.6	0.35
1988	1779	100	1.02	0.32	5.5	0.36
1989	1788	100	1.02	0.31	5.6	0.33
1979-89	-6.8%	-7	-0.42	-0.21	-3.7	-0.01

NOTES and SOURCES: Gross Aid £m is 'Gross Public Expenditure on Overseas Aid' in 1989 prices (*British Aid Statistics 1985-1989*, ODA, 1990; 1978 and 1979 were linked using 1985 prices deflater from ODA, 1988); Index is constant price value for each year as a percentage of 1989 value. The volume of Gross Aid is expressed as a percentage of: CGCE, total central government current expenditure (*CSO Blue Book*, 1990 and 1989), GNP and DAC, which is UK aid as a percentage of total DAC aid; final column is total DAC aid as percentage of total DAC GNP (all from *British Aid Statistics*, ODA, various years). Since the data are often revised in successive sets of statistics we endeavour, here and in other Tables, to use the latest figures available. The final row gives *percentage point* change, except in the case of Gross Aid £m, which is percentage change.

Both business and the development lobby failed in their primary objective of increasing aid, because this contravened spending policy, although intense pressure from both probably contributed to the increase in the aid budget in later years. Business did benefit from greater emphasis:

> [In the 1980 Government Spending White Paper] the British Government announces its intention to reduce the level of aid appropriation in real terms as part of its general policy on public expenditure restraint and to give greater weight in the aid programme to political, industrial and commercial considerations (DAC, 1985:83)

Due to special factors and the timing of aid, year-on-year variations can be quite large so that policy changes take a few years to become evident. The extent of this variability is clear: there were large cuts in aid in 1980, 1982 and 1987; the real value stagnated somewhat in the mid-80s. A probable factor explaining the 1980-82 variability is that multilateral replenishments and some bilateral projects were bunched so that spending withheld in 1980 was incured in 1981. Aid bore a disproportionate share of public expenditure cuts; gross aid was 1.4 per cent of current government spending in 1979, around one per cent through the mid-1980s, but fell to 0.88 per cent in 1987 and registered a fall of about half a percentage point over the decade. Between 1979 and 1989 aid fell from 0.52 to 0.31 per cent of GNP (Table 4.2). It is evident that the UK has cut its aid by more than the donor community as a whole and Britain's share of the DAC total halved from 9.3 per cent in 1979 to 4.6 per cent in 1987, recovering to 5.6 per cent in 1989.

The Composition of the Aid Budget.

The potential benefits from aid depend on composition and volume. The three forms relevant to commercial gains are in Table 4.3; non-financial bilateral aid (the implied residual in column three) is mostly TCA and administration costs. Multilateral aid as a share of the total rose in the early 80s but then fell back to about its 1982 level. This reflects the fact that the volume of multilateral aid is relatively fixed so changes in share match the trend in bilateral aid. Financial bilateral aid tended to fall throughout the mid-80s, and fell by 11 percentage points over 1979-89. The most severe cut, however, was in officially tied bilateral aid; its share fell by fifteen percentage points, some 20 per cent, over the decade. This figure relates

to tied *financial* bilateral aid and understates tying since it excludes bilateral aid for training and TCA which is effectively tied. On the other hand, financial bilateral aid includes untied programme aid and debt relief.

Table 4.3: Composition of British Aid, 1978-89

	Net aid £m	Multi-lateral %	Bilateral financial %	Tied %	ATP %
1978	682	27.6	69.3	74.4	
1979	825	30.7	69.3	71.7	6.5
1980	786	33.0	63.9	59.2	4.6
1981	993	34.3	70.4	58.9	5.1
1982	932	42.7	63.6	60.6	11.8
1983	1018	45.1	61.8	53.4	9.1
1984	1080	46.9	65.1	46.5	9.1
1985	1119	41.6	62.2	47.5	6.4
1986	1162	40.0	60.8	59.7	11.2
1987	1131	42.9	51.3	50.0	4.5
1988	1467	42.1	54.4	50.6	6.6
1989	1562	40.6	58.0	56.2	5.5
1979-89	89.3%	9.9	-11.3	-15.5	

NOTES and SOURCES: Net Aid is the value of the aid programme (net) in current prices; Multilateral is net contributions to Multilateral agencies, as a percentage of net Aid. Bilateral financial aid and Tied Bilateral Aid are both expressed as a percentage of *gross* Bilateral aid; note that Tied includes ATP while financial includes both Tied and ATP. The value of ATP expenditure in each year is expressed as a percentage of *net* bilateral aid (from *British Aid Statistics*, various years).

Business groups were successful in getting ATP but the benefits have been offset by the large fall in tied project aid. Closer examination indicates that the switch towards ATP favoured a small group of firms (Chapter 8). Annual expenditure on ATP, in volume and share terms, is extremely volatile as shown in Table 4.3. This arises because the granting of ATP support does not guarantee a contract will be won and, once granted, it may take over a year for the contract to be agreed (it is clear that many contracts were bunched in 1982 and 1986). The apparent shift from tied bilateral to ATP has benefited large insider firms, who used direct contacts with decision-makers to lobby for ATP, at the possible expense of less well connected companies who faced a smaller fund of tied bilateral aid (see Chapter 10).

The Sectoral Allocation of Aid

A more commercial aid budget would imply increased allocations to capital-intensive, engineering and transport projects, whereas an emphasis on helping the poorest would suggest rural, health, education and agriculture based projects. An examination of the trend in the allocation of project aid by sector reveals no clear trend. In Table 4.4, allocation indicates intentions and expenditure represents lagged outcomes; despite variability, there is a broad consistency in shares over the period. The sectors most likely to generate commercial benefits - Energy, Industry, Telecommunications and Transport - tended to absorb between half and two-thirds of Project Aid.

A comparison with the lending pattern of the World Bank can assist evaluating Table 4.4. In Table 4.5, IBRD represents a more commercial pattern to the richer LDCs, while IDA goes to the poorest countries and should reflect more basic development needs. Indeed, less than a third of IDA tended to go to the most commercially beneficial sectors, while in the early years almost half went on Agriculture and Rural Development with a relatively large amount on Education in later years. The pattern of UK Project Aid more closely resembles IBRD lending, with an even greater emphasis on Energy and Telecommunications. This is consistent with an aid budget oriented more towards gaining commercial benefits than promoting basic development. It may be, however, that Project Aid is the instrument within the aid budget used to promote commercial objectives.

Table 4.4: Trends in British Project Aid by Sector, Selected Years, 1980-88

	1980		1985		1988	
	Alloc %	Exp %	Alloc %	Exp %	Alloc %	Exp %
Resources	20.8	13.0	45.2	18.4	12.2	19.3
Finance	2.3	2.3	-	0.8	7.2	8.6
Education	-	0.8	2.4	0.4	0.5	1.6
Health	0.2	1.8	0.5	1.2	1.4	1.5
Water	0.7	2.6	5.9	5.9	1.2	1.3
Urban	0.6	0.8	-	1.0	3.2	3.1
Energy	44.3	19.6	13.6	35.9	30.0	18.2
Industry	1.7	7.3	3.4	4.3	11.1	7.1
Telecomm.	0.1	5.9	-	0.7	10.6	5.7
Transport	13.1	28.4	10.8	14.6	13.4	14.6

NOTES: Alloc. is sector share of budget allocation in the given year; Exp. is sector share of actual disbursements in the year. Resources includes agriculture, livestock, rural development, irrigation and other renewable natural resources; Finance is defined as 'other financial' (agricultural development banks received almost nothing in the 1980s); Health includes welfare; Water includes sanitation and environmental protection (and urban development in 1980); Urban is urban and industrial development plus housing (but only housing in 1980); Industry is primary processing, fertiliser and other manufacturing; Telecommunications includes Post.

SOURCES: Data are from *British Aid Statistics*, (ODA, various years).

Table 4.5: World Bank Trends in Lending by Sector, Selected Years, 1980-89.

	1980		1985		1989	
	IBRD	IDA	IBRD	IDA	IBRD	IDA
	%	%	%	%	%	%
Agric. & Rural	22.2	45.8	21.0	44.9	12.6	28.9
DFCs	9.7	1.9	5.9	4.5	13.5	2.9
Education	4.7	2.1	4.5	13.6	2.7	9.1
Health, etc.	0.9	2.0	1.4	1.0	2.4	4.5
Water	5.8	4.8	5.5	5.2	3.5	4.5
Urban	3.3	2.6	1.8	5.9	5.8	4.7
Energy	25.0	24.4	29.6	7.1	20.7	9.2
Industry	5.1	0.8	5.6	0.3	11.3	2.5
Telecomm.	0.9	1.7	0.5	2.0	0.3	2.2
Transport	15.8	6.2	16.4	9.0	6.9	14.0

NOTES: The first sector is Agriculture and Rural Development; DFCs are Development Finance Corporations; Health includes population and nutrition; Energy is mostly Power but includes Oil, Gas and Coal;

SOURCES: Data for 1980 are from World Bank (1982:125); for 1985 from World Bank (1985:124); and 1989 from World Bank (1989b:182).

The Geographical Allocation of Aid

We are not concerned with changes in aid to particular countries, which can vary for a variety of reasons, but wish to identify any trends in the allocation between different groups of countries, in particular the relatively poor against the relatively rich. There has been a decline in the concentration of British aid. In 1960-61 the concentration ratio for the top five recipients (the share of total aid going to the five countries with the highest shares) was 42 per cent, and that for the top ten was 67

per cent; the figures by 1982-83 were 19 and and 27 per cent respectively. Only India and Kenya were among the top five recipients in both periods (DAC, 1985:313). British aid is widely spread over numerous countries, a fact condemned by both the business and development lobbies for different reasons, but favoured by the FCO for the political benefits.

Britain has a good record on giving a large share of its aid to the poorest LDCs, which received 31 per cent of net UK aid (43.5 per cent if China and India are included) in 1982-83, compared to 20.5 (27.2) per cent of total DAC aid. The UK gave a greater share of its aid to the poorest than did any of the other major donors, by a considerable margin (DAC, 1985:127). The share of bilateral aid going to the fifty poorest LDCs rose from 62 per cent in 1985 to 68 per cent in 1987; on the other hand, the share going to upper-middle income countries rose from three per cent in 1979 to almost eight per cent in 1988 (*British Aid Statistics*, ODA, various years). The aid budget has recognised development interests through the quality of aid, untied for natural resources and poor LDCs, but not by increasing the quantity; the trend towards the richest LDCs indicates a desire for more commercial gains, which could be reinforced by devoting funds to capital projects in poorer LDCs. The share of Bilateral aid going to Commonwealth countries has fallen slightly from about 75 per cent in the early 1980s to 71 per cent in the late 1980s (Toye, 1991), which may simply reflect the increased importance of China and Indonesia.

The ATP exhibits a distinct allocation, being more likely to go to richer LDCs and, for this and other reasons, is less likely to facilitate development. In 1978-9, 50 per cent of ATP went to Africa, reflecting competition with French *credit mixte* in Francophone Africa, 48 per cent to Asia and two per cent to the Americas; the respective figures for Bilateral aid were 36 per cent, 47 per cent and 9 per cent. By 1983-4 the profile for other bilateral aid had changed little (Africa rose somewhat at the expense of Asia); Africa's share of ATP fell to 20 per cent; the America's rose to 22 per cent, largely due to two projects in Brazil and Mexico, while Asia's rose to 58 per cent, due to a number of large contracts in India and Malaysia. Between 1978 and 1982, only a third of ATP went to the poorest 50 countries while these recieved about two thirds of normal bilateral aid (Toye and Clark, 1986).

Table 4.6: Distribution of ATP by Recipient LDC, 1978-86

COUNTRY		No. of Contracts	ATP £m	ATP %	Contracts £m	ATP %
Cyprus	U	1	0.37	-	2.50	14.6
Egypt	P	12	39.02	8.86	124.83	31.3
Jordan	U	2	13.61	3.09	48.57	28.0
Malta	U*	1	0.13	-	0.13	100.0
Morocco	M	1	13.51	3.07	51.50	26.2
Syria	U*	1	0.01	-	0.01	100.0
Turkey	M*	1	0.35	-	0.35	100.0
EMENA		19	66.99	15.21	227.88	29.4
Belize	M	2	0.77	-	3.08	25.0
Bolivia	P*	1	0.03	-	0.03	100.0
Brazil[1]	U	3	24.18	5.49	90.84	26.6
Caribbean	M	2	6.43	1.46	12.93	49.8
Colombia	M	5	0.74	-	1.90	39.0
Honduras	P*	1	0.10	-	0.50	20.0
Mexico[1]	U	3	34.98	7.94	200.06	17.5
Paraguay	M	3	5.24	1.19	17.61	29.8
Peru	M	1	4.85	1.10	25.63	18.9
LA&C		21	77.32	17.56	352.57	21.9
Botswana	M	2	5.76	1.31	21.86	26.4
Cameroon	M*	4	1.41	-	1.41	100.0
Ecowas[2]		2	0.32	-	0.32	100.0
Guinea Bissau	P	1	1.29	-	3.50	36.9
Kenya	P	7	13.96	3.17	51.76	27.0
Madagascar	P	1	0.60	-	2.80	21.4
Malawi	P*	2	0.31	-	1.05	29.7
Mozambique	P	2	2.09	-	8.45	24.7

Senegal	P	1	1.00	-	3.00	33.3
Sudan	P*	1	0.01	-	0.01	100.0
Tanzania	P	4	4.20	0.95	31.41	13.4
Zambia	P	1	1.76	-	1.76	100.0
Zimbabwe	M	4	11.13	2.53	33.13	33.6
AFRICA		32	43.83	9.95	160.46	27.3
Bangladesh	P	1	4.68	1.06	17.30	27.1
Burma	P	9	17.83	4.05	76.04	23.4
China	P*	1	0.15	-	0.15	100.0
India	P	4	65.33	14.84	441.43	14.8
Indonesia	P	12	35.15	7.98	211.45	16.6
Malaysia	U	7	75.82	17.22	237.74	31.9
Mauritius	M	1	6.31	1.43	18.96	33.3
Pakistan	P	1	9.57	2.18	27.00	35.5
Papua NG	P*	1	0.10	-	0.10	100.0
Philippines	P	2	2.01	-	8.67	23.1
Sri Lanka	P	3	24.70	5.61	86.09	28.7
Thailand	P*	4	3.16	-	3.16	100.0
Vietnam	P	2	7.35	1.67	27.60	26.6
ASIA		48	252.16	57.27	1155.69	21.8
TOTAL		120	440.29	100.00	1896.60	23.2

NOTES AND SOURCES: ATP and Contract value from FAC (1987); - designates share in all ATP less than 1%; * designates ATP for training/consultancy only (which could be 100% funded between 1980 and 1988); final column, ATP%, is ATP/Contract value in percentage terms. P indicates a country among the fifty poorest by 1982 GNP per capita; M indicates a lower middle income country (51 to 72 in world rankings of poorest countries); P indicates an upper middle income country (73 to 94 in world rankings, all from World Bank, 1984)

[1] Almost 99.9% of ATP in Brazil and Mexico went on one large project, a power station and a steelworks respectively.

[2] Economic Commission of West African States (ECOWAS).

There are a number of reasons why the geographical distribution of ATP differs from the rest of British aid. First, ATP was directed to countries not normally receiving UK aid or whose normal allocation was fully allocated. Second, the rationale was to support UK business and requests for ATP were initiated by companies, hence tended to come from firms with major overseas operations. Finally, ATP requires export credit cover which many African states lost in the 1980s; this may explain the falling share for Africa. All these point to richer LDCs as being most likely to attract ATP. Table 4.6 shows the geographical distribution of all ATP awards in the period 1978-86. Eighteen per cent went to the Americas (LA&C); the amount going to the poorest recipients was negligible, and by far the greatest amounts went to Brazil and Mexico. Some 15 per cent went to Mediterranean countries (EMENA), with Egypt, the only poor country among them, receiving about half. In stark contrast, only 10 per cent went to Africa; this included nine of the poorest countries in the world but, excepting Kenya, the amount they received was negligible. The remaining 57 per cent went to Asia and included 11 of the worlds poorest countries but only four received significant amounts. Malaysia, an upper middle income country with 17 per cent of the total, was the largest single recipient. Ten countries received 78 per cent of ATP, of which six accounting for 34 per cent were among the worlds poorest. Put another way, some 37 per cent went to countries classified as 'upper middle income'.

4.5. Aid Trends Among Major Donors

As indicated in Chapter 3, aid can be used as an instrument of donor trade policy. The potential of aid to support donor export competion will depend on the volume offered and the degree of tying. Table 4.7 shows the extent of the fall in British aid relative to other donors (the seven countries in Table 4.7 we define as the major donors, and they account for over four-fifths of all DAC aid). In terms of aid as a percent of GNP, the UK ranked 3rd in 1979 but was among the three lowest by 1988. British aid increased by only slightly over half in nominal terms and there were only two other countries which did not more than double the nominal value of their aid. The case of the Netherlands reflects slow economic growth and the share of GNP increased to almost one per cent. Germany was the only country like the UK in allowing aid as a share of GNP to fall. The increase in Italian aid was quite phenomenal while that of Japan owes much to rapid economic growth.

Table 4.7: Aid From Major Donors, 1979-88, selected years

DONOR	1979		1985		1988		Δ'79-88
	£m	% GNP	£m	% GNP	£m	% GNP	
USA	2152	0.19	7253	0.24	5489	0.20	155%
France	1583	0.59	3082	0.78	3907	0.73	147%
Germany	1579	0.44	2269	0.47	2639	0.39	67%
Japan	1243	0.26	2929	0.29	5128	0.32	313%
UK	974	0.52	1184	0.33	1485	0.32	52%
Netherlands	662	0.93	876	0.91	1252	0.98	89%
Canada	485	0.46	1258	0.49	1314	0.50	171%
Italy	132	0.09	847	0.26	1691	0.37	1181%
DAC	10489	0.34	22706	0.35	26730	0.35	155%

NOTES and SOURCES: All figures refer to the DAC definition of official development assistance and are from ODA (various years); Δ'79-88 is percentage change over the period. In any given year the ranking of donors in terms of the value of their aid budget depends not only on the volume of aid but on the exchange rate and whether comparisons are made in £Stg. or $US. Denominated in £Stg, the UK ranked 5th in 1979, 6th in 1984 and 1985 when passed by Canada, which then fell back. Italy doubled its aid budget in 1986 and, with the Netherlands, relegated the UK to 7th place until 1988. By 1990 Japan is expected to be the largest donor denominated in $US.

In addition to the volume of aid, the degree of tying and the project allocation are determinants of the commercial potential. There was a tendency for the major donors to increase the degree of tying during the 1980s, reflecting the collapse of Middle East markets in the early 1980s and the related contraction in LDC markets during the debt crisis and since. Table 4.8 shows that the degree of tying of total DAC aid rose from 48 to 51 per cent between 1985 and 1987. Although it reduced

the degree of tying slightly, Britain along with Italy and the USA ties a greater share of aid than others (although the figure for France may be an underestimate). While they increased the degree, Germany and the Netherlands had least recourse to tying. With the exception of the USA and, to a lesser extent, France, all donors tended to direct their aid towards capital projects, which would be most capable of helping their exporters. In general, Italy, France and Japan adopt the most export-oriented aid policies while Germany and the USA offer the least support to their exporters (see Morrissey, 1989d, for more detail).

Table 4.8: Aid Tying and Allocation by Major Donors

DONOR	TIED AID		PROJECT ALLOCATION	
	1985	1987	Industry	Utilities
	%	%	%	%
USA	59	64	0.18	8.30
France	44	47	7.31	22.91
Germany	36	43	3.81	47.66
Japan	44	44	12.13	53.10
UK	69	58	4.13	39.12
Netherlands	35	43	11.26	46.04
Canada	56	48	5.20	56.83
Italy	69	62	22.06	26.71
DAC	48	51	6.20	28.00

NOTES and SOURCES: TIED AID is the estimate of the total share of aid both fully and partially tied (Jepma, 1989:18). PROJECT ALLOCATION is for 1984; Industry is the share of bilateral project aid allocated to 'Industry, Mining, Construction'; Utilities is the comparable share to 'development of public utilities', largely civil engineering (DAC, 1985:302-3).

Developing countries will be concerned with the cost of aid to themselves. Britain fares well on this criterion with a grant element in total aid of 99 per cent in 1983-4, exceeding the DAC average of 91 per cent, below which fall a number of major donors (Japan, France and Germany, see DAC, 1985:106), so that UK aid is relatively cheap in terms of repayment obligations. The UK is also more likely than other major donors to provide aid to the poorest countries although this trend is largely explained by the traditional prominence of India as a recipient of UK aid. Although India is very poor in per capita terms, it is industrialised and much of the aid goes on capital goods which supports British companies but has had very mixed results in terms of assisting India's development (National Audit Office, 1990). On balance there is little to support a claim that UK aid is any more likely to promote basic development than the aid of other donors.

4.6. Has British Aid Been Commercialised?

Section 4.1 outlined a perception that the aid budget had been commercialised during the 1980s. This belief was justified by the introduction and expansion of ATP and the adoption of a commercial rhetoric by Ministers for Overseas Development. On the evidence reviewed, it is the rhetoric on aid that has been commercialised, not the aid budget itself. The business lobby demanded more tied aid to match other donors but the government was committed to cutting spending and neither aid nor subsidies were part of its ideological baggage. So the budget was cut, severely. Although a few firms benefited from ATP, the business lobby failed to get its primary interests enshrined in the aid budget, despite a rhetoric of government aid policy supportive of commercial interests. Donors do define aid criteria in terms reflecting business interests: development means economic growth; successful projects are those profitable in terms of internal rates of return; construction and capital-goods projects are favoured. Aid is structured to benefit donor exporters more than it meets development interests. Insider firms were able to present a coherent view and identify visible costs and benefits in support of ATP, which sheltered large exporters from the commercial costs of the reduced budget. Insider status was not the only reason they were favoured: mixed credits tend to be for capital-intensive projects which require large contractors; only large firms can maintain the local contacts to operate in LDCs; large projects are easier to administer and are of high visibility for political purposes.

The business lobby has had a limited influence on the Thatcher governments in respect of the aid budget; firms are expected to compete as if there were a free market, despite evidence of distortions introduced by other donors. International and internal political interests, notably public expenditure restraint, have been the predominant determinants of the budget. British business has been unable to exert the influence required to elicit a real increase in tied aid. We have reviewed the aid budget from a particular perspective, that of business groups extolling commercial benefits and seeking to alter its composition and emphasis. The remainder of the thesis pursues this issue in greater detail, presenting a model for measuring the benefits of aid-supported exports to the UK economy and then, in successive chapters, applying this to measure the impact of various types of aid.

CHAPTER 5. INPUT-OUTPUT METHOD OF IMPACT ANALYSIS

It was argued in Chapter 3 that the commercial benefits of aid, the impact on the donor economy, are an important factor influencing aid policy, especially in respect of the tying of aid. Existing literature on the imapct of aid on the UK economy was reviewed and the Input-Output (IO) method of impact analysis was proposed as the most appropriate technique for estimating the gross commercial benefits from aid. Three extant studies have used this technique (HSPE, 1986; Love and Dunlop,1990; May, Schumacher and Malek, 1989) but none fully exploit the possibilities. This Chapter sets out the IO approach which forms the basis of the measures of gross commercial benefit in the following four chapters.

Section 5.1 sets out formally the manner in which aid impacts on the economy. Section 5.2 then presents the basic elements of the IO Table and how this can be used for impact analysis. A number of extensions to IO impact analysis are discussed in Section 5.3, notably the treatment of consumption and the estimation of multipliers. The data set employed in this study is discussed in Section 5.4, which defines the process for aggregating IO Tables and then presents the equations to be estimated. Finally, in Section 5.5, some limitations of the approach are considered.

5.1. How Aid Impacts on the Economy

The basic argument has already been presented: some portion of aid will be spent on importing goods produced by donor industries, and this proportion will be greater to the extent that aid is tied. Donor industries may also win export orders financed partially out of the aid granted by other donors, due to substitution effects; this may be offset as aid-financed orders displace normal commercial orders. Furthermore, due to radiation effects and the needs for maintenance and spare-parts, exports will tend to generate future orders. The IO method measures only economic activity due to donor exports financed out of donor aid; the implications of other effects are considered in Section 5.5 and subsequent chapters (and are unlikely to be affected by the type or tying status of aid).

It is not aid itself which impacts on the donor economy but the exports which are attributable to its aid budget. Thus, the fundamental determinant of impact is the *export ratio* of aided exports (x_a) to initial aid (a), ie. the extent to which aid is transformed into exports, which we designate by the parameter ρ, which has three basic components. These are the degree of tying (τ), the level of leakages (λ) and the degree of competitiveness (χ). All three of these components will vary according to the type of aid and the nature of the exporting industry (the type of product to which the aid relates). The discussion can be framed in terms of a simple equation, for industry i and type of aid a:

$$\rho_{ia} = \tau_{ia} - \lambda_{ia} + \chi_{ia} \qquad (5.1)$$

We will ignore, for the present, the possibility of time lags between the granting of aid and the winning of export orders. The τ is relatively straightforward and measures the degree of tying; if a particular type of aid is fully tied it assumes the value of one while partial tying implies a value below unity. This component can also incorporate aid which is effectively an export subsidy; for a subsidy of value σ, expressed as a proportion of the contract value, then $\tau = 1/\sigma$. The value can differ between industries; for example, the nominal export subsidy under ATP in 1980 was 25 per cent for capital projects ($\tau = 4$) but up to 100 per cent for consultancy ($\tau = 1$). The second component, leakages, is most easily interpreted as the proportion of the aid which can be allowed as local costs (approximately 30 per cent for UK bilateral aid) but could also include the proportion of an order which contractors can procure from third countries (expressed relative to the aid value). The range $0.2 < \lambda < 0.4$ seems likely.

The competitiveness component, χ, generally represents the degree of informal tying. A specific example, relating to our application of this component in estimating impact, will be more useful than a generalisation. In the case of multilateral aid, such as contributions to the World Bank, there is no formal tying to the donor ($\tau = 0$) but there is a broad tendency for donor firms to win orders, as a share of total Bank contracts, in rough proportion to the donor's share of total contributions. The more internationally competitive a particular donor industry, the

more likely it is to win such orders and hence the greater the value of χ, which we measure as the value of contracts won as a proportion of the value of contributions. Since, in practice, contributions are not industry-specific although competitiveness may be, any observed value of χ_a will be the aggregate over all industries for a particular type of aid (ie. contributions to a particular MAA). Note that this component could be extended to incorporate spare-part and follow-on orders, in which case the value would vary by industry but not necessarily by type of aid.

The value of aided exports for any industry would therefore depend on the amount of each type of aid going to that industry (a_{ia}) and the relevant values of ρ_{ia}, as given by the equation:

$$x_i = \Sigma_a \rho_{ia}.a_{ia} \qquad (5.2)$$

This can be expressed in matrix notation:

$$\mathbf{x} = P_\tau \mathbf{a}_\tau + P_\mu \mathbf{a}_\mu + P_\alpha \mathbf{a}_\alpha \qquad (5.3)$$

where

$\mathbf{x}$ = a column-vector of i elements, aided exports per industry,

P_a = a matrix of elements ρ_{ia} along the principal diagonal, otherwise 0

$\mathbf{a}_a$ = a column-vector of i elements, value of type of aid a per industry; tied bilateral aid (τ)[1], multilateral aid (μ) and ATP (α).

We can extend (5.2) to consider time. The x_{it} in any year t will be a weighted sum of $\rho_{ia}.a_{ia}$, the potential exports, over a number of years (n), with the length of the distributed lag varying between industries. Thus, if the aid relates directly to manufactured output, such as coaches or rolling stock, the exports are likely to accrue after a lag of about one year. However, if the aid relates to a large construction project, the capital exports are likely to accrue in stages over a period of years. In equation form:

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1 We do not consider the use of τ for tied bilateral (as a subscript) and for the degree of tying to be confusing; the two are closely related and it will always be clear which is meant.

$$x_{it} = \Sigma_l \gamma_{i,t-l} (\Sigma_a \rho_{ia,t-l} \cdot a_{ia,t-l}) \quad (5.4)$$

where

$\gamma_{i,t-l}$ = the proportion of potential exports for industry i in year t-l that accrue in year t; $l = 0, 1, 2, \ldots, n$; $n = n(i)$.

The factors determining the level of exports directly supported by aid are encapsulated in equations (5.1) and (5.4). Essentially, these depend on the nature of the aid and the nature of the product or project. The estimation of x_{it}, however, is only the first step in quantifying impact. These exports have to be produced, and therefore represent an increase in output and in the demands for inputs. Furthermore, given that industries are inter-related (each industry demands inputs from some or all other industries hence an increase in the output of one will lead to an increase in the output of all) this increase in economic activity has a multiplier effect on the economy. IO analysis is an appropriate way to evaluate such multiplier effects; before outlining the method in Section 5.2, it will be useful to discuss the basic structure of IO Tables (see schematic representation in Figure 5.1).

Figure 5.1. Schematic Input-Output Table

	INDUSTRIES	FINAL DEMANDS				TOTAL
INDUSTRIES	**Z**	**c**	**g**	**v**	**e**	**q**
	h	c_h	g_h	0	e_h	h
PRIMARY	**t**	c_t	g_t	v_t	e_t	t
INPUTS	π	0	0	0	0	π
	m	c_m	g_m	v_m	e_m	m
TOTAL	**q**	c	g	v	e	GNP

Note: In this representation, and at various points, we may use t as a subscript to represent the intermediate taxes. In such cases it should always be clear that the subscript is not to represent time, for which t is also used.

The IO Table divides the economy into a number of industries (102 in the 1984 Table, on which much of our analysis is based) covering all economic activities from agriculture and extractive industries, to manufacturing and service industries, and including energy and public administration. The core element of the Table is the inter-industry matrix (**Z**) showing the value of inter-industry trade (the diagonal elements represent intra-industry trade). The value of the sales of an industry to other industries represents the intermediate inputs provided by that industry to others (eg. sales of steel to metal goods, vehicle manufacturing and construction industries); these are given along the rows of **Z**. The entries in the columns of **Z** represent the purchases of intermediate inputs by one industry from others (eg. motor vehicle manufacturing purchases steel, rubber, metal goods, services, etc.). This matrix is the basis of the analysis detailed in Section 5.2.

Intermediate inputs comprise only a portion of total inputs, the remainder being termed primary inputs. The IO Table gives the value of primary inputs divided into five types, four of which are of interest to us. Labour (the vector **h**) measures household income from employment, therefore includes the total wage and salary bills for an industry. Profits (the vector π) measures gross profits and other trading income, including rents, and implicitly includes, as being the source of, household investment income. Imports (the vector **m**) is the value of imported inputs while taxes (the vector **t**) measures all taxes on industry expenditure less subsidies and includes VAT that cannot be reclaimed, some excises and taxes on imported inputs. The fifth primary input is sales by final demand and is a sort of residual category for purchases that cannot be elsewhere classified; it is not pertinent to our study.

Industry output is either purchased by other industries or sold to final demand, for which the IO Table has five categories (we combine two of these). The most important is consumer expenditure on goods and services (**c**), which is self-explanatory. The other three categories are government expenditure on goods and services (**g**), exports (**e**) and investment (**v**) in which we include both gross fixed capital investment and changes in stocks. An increase in final demand for an industry will elicit an increase in output for that industry which, through **Z**, requires increased output from other industries supplying inputs, and a general increase in

the demand for primary inputs. It is in this way that aid-supported exports, which are elements of **e**, impact on the economy, and thus IO is a suitable analytical method for quantifying impact.

A few comments on the entries in the primary inputs by final demands matrix are warranted; convention, rather than theory, usually decides if these entries are non-zero. For example, c_h represents final consumer demand for labour (eg. domestic help) and is zero if such labour is classified under a particular service industry, as is the case for UK Tables. Similarly, g_h is government final demand for labour and is zero in the UK Tables since public employment is included as an industry in **Z**. The e_h entry is wages paid as exports, or net remittances. The interpretation of the final demands corresponding to imported inputs or taxes are fairly clear. UK practice allocates VAT to consumer spending but then deducts it from IO values so that it is not included as industry output; this is convenient for our analysis since VAT is not paid on exports anyway. More information on the UK IO Tables can be found in Central Statistics Office (CSO, 1988).

5.2. Basic Elements of Input-Output Analysis

The economic relationship underlying IO is the inter-dependence between industries in an economy; part of the output of one industry is an intermediate input for others, and each uses the products of other industries to make its output. We use the term industry loosely to designate the firms comprising a column/row set of entries in an IO Table, so that it is our basic level of classification. Industry output depends on the demand for its product as an input to other industries and the final demands from consumers, government, investment and foreign trade.

The essence of IO impact analysis is that, due to the linkages in the economy, an increase in final demand for the output of any industry will induce an increase in the output of all related industries and in the derived demand for primary inputs (labour and imports in particular). In the same way, given the structure of the economy we can estimate the level of economic activity sustained by any component of final demand. We can represent an economy with n industries as a series of simultaneous linear equations of the form:

$$q_i = z_{i1} + z_{i2} + \ldots + z_{ij} + \ldots + z_{in} + \mathbf{d}_i \qquad (5.5)$$

The q_i represent the total output of industry i, which is composed of the demand for i's output from each other industry j, the z_{ij} (elements of **Z**), and the row-vector of final demands for i's output, the $\mathbf{d}_i$. In an IO table (5.5) represents the rows, ie. the industry outputs. The columns of the table are the industry inputs and can be represented as:

$$q_j = z_{1j} + z_{2j} + \ldots + z_{ij} + \ldots + z_{nj} + \mathbf{f}_j \qquad (5.6)$$

where

q_j = total inputs to industry j, where $q_i = q_j$ if $i = j$,
$\mathbf{f}_j$ = column-vector of primary inputs to j,
z_{ij} = output of industry i required as an input to j.

In disaggregating the inputs in (5.6) a particular distinction is drawn between the intermediate inputs, which are demanded from other industries and define the inter-dependence of the model, and the primary inputs. The intermediate inputs can be represented as a share of total inputs (outputs):

$$\theta_{ij} = z_{ij}/q_j \qquad 0 < \theta_{ij} < 1 \qquad (5.7)$$

where θ_{ij} is the *technical coefficient* defining the proportion of j's inputs purchased from i, generally defined in value terms. Two fundamental assumptions underlie the IO model, given that the θ_{ij} are constrained to be fixed once known:
i) all industries face constant returns to scale (the θ_{ij} are independent of the level of output); ii) there is no substitution between intermediate inputs and output is constrained to the level implied by the lowest z_{ij}/θ_{ij} ratio in this static model.

The Leontief Inverse.

Availing of equation (5.7), we can rewrite (5.5):

$$q_i = \theta_{i1}.q_1 + \ldots + \theta_{ij}.q_j + \ldots + \theta_{in}.q_n + \mathbf{d}_i \qquad (5.8)$$

which can be rearranged to yield,

$$q_i - \theta_{i1}.q_1 \quad - \ldots - \quad \theta_{ij}.q_j \quad - \ldots - \quad \theta_{in}.q_n \quad = \quad \mathbf{d}_i \qquad (5.9)$$

The system of equations (5.9) can be represented compactly in matrix notation:

$$(\mathbf{I} - \Theta)\,\mathbf{q} \quad = \mathbf{d} \qquad (5.10)$$

and,

$$\mathbf{q} \quad = \quad (\mathbf{I} - \Theta)^{-1}\mathbf{d} \quad = \quad \mathbf{L}.\mathbf{d} \qquad (5.11)$$

where

- $\mathbf{q}$ = column-vector of the q_i's, $i = 1,\ldots,n$,
- $\mathbf{d}$ = column-vector of the d_i's, $i = 1,\ldots,n$,
- $\mathbf{I}$ = Identity matrix; all elements along the principal diagonal are unity, all other elements are zero,
- Θ = Matrix of θ_{ij}; elements along principal diagonal greater than unity, all other elements positive but usually less than unity,
- $\mathbf{L}$ = The Leontief Inverse, as defined in the equation.

The element l_{ij} of $(\mathbf{I}-\Theta)^{-1}$ is $\partial \mathbf{q}_i/\partial \mathbf{d}_j$ (the interdependence coefficient) and represents the effect of $\mathbf{d}_j$ on $\mathbf{q}_i$. Equation (5.11) allows one to evaluate the effect on output ($\mathbf{q}$, equivalent to inputs) of a change in final demand ($\mathbf{d}$). The matrix Θ can be derived from a published IO Table and the inverse $(\mathbf{I} - \Theta)^{-1}$ calculated. This inverse, called the Leontief inverse (see Leontief, 1988), henceforth denoted $\mathbf{L}$, can be used to calculate the value for $\mathbf{q}$ associated with any $\mathbf{d}$.

In addition to the matrix of technical coefficients, Θ, the published IO Tables permit one to calculate the primary input coefficients for each industry. These are the share of total inputs accounted for by each primary input and do *not* identify the primary inputs required to meet an increase in output (contrary to claims in HSPE, 1986). An increase in demand ($\Delta \mathbf{d}_i > 0$) has a direct effect on the industry's input requirements, which is proportional to the input coefficients, and an indirect effect on the input requirements of industries whose produce is required by i as an intermediate input. Because i requires supplies from other industries, the output of the economy must expand by more than $\Delta \mathbf{d}_i$ if i is to meet its new demand. This

indirect effect is proportional to the θ_{ij} and the input coefficients of the supplying industries, and can be considered as the first round indirect effect. The second round occurs when supplying industries demand intermediate inputs from other industries, which then demand supplies and services. An injection of demand into one industry sets off a multi-round effect such that the output of the economy increases by more than the initial demand. The ratio of the total increase in output to the initial demand can be termed the *aggregate output multiplier.*

Given the meaning of its l_{ij} elements, **L** measures the direct and indirect multi-round effects of a change in demand. These effects are slightly more complex than indicated in the previous paragraph. Intra-industry transactions, inputs required from within the industry, imply that output of *i* itself will increase by more than the increase in demand, ie. $\Delta \mathbf{q}_i > \Delta \mathbf{d}_i$ and $l_{ii} > 1$. Allowing a simultaneous increase in demand for more than one industry, the increased output of any industry will depend on the increase in its demand, the scale of intra-industry demand and the level of intermediate demands from other industries trying to increase their output. The Leontief inverse accounts for all of these effects.

5.3. Extensions to the Input-Output Framework

The purpose of this section is to discuss the concept of IO multipliers. The procedure encapsulated in (5.11) allows one to evaluate the impact on the economy of an increase in demand; by concentrating on individual industries one can estimate the effect on the economy of an increase in demand for the products of one industry, given the inter-connections between that industry and all others. This effect is represented by the IO multipliers for that industry.

By calculating the Leontief inverse we can evaluate the impact of a change in final demand on total output and, in so doing, on the output of each industry. Similarly, we can calculate the effect of an increase in demand for one industry on the whole economy to give the output multiplier for that industry. Since production technologies vary, some industries will rely more heavily on intermediate inputs than others and will, therefore, have a higher output multiplier. Output implies income; the income multiplier will depend on the share of wages in the inputs of all

industries benefiting from an increase in the output of an industry. Furthermore, labour-intensive industries, or those which demand inputs from labour-intensive industries, will have a greater effect on increasing employment, ie. a higher employment multiplier. We focus on these three multipliers.

Output Multipliers

> An output multiplier for sector *j* is defined as the total value of production in all sectors of the economy that is necessary in order to satisfy a dollar's worth of final demand for sector *j*'s output. (Miller and Blair, 1985:102)

The definition of the output multiplier for industry *j* (O_j) is quite simply the sum of the *n* elements in the j^{th} column of the **L** matrix:

$$O_j = \Sigma_i l_{ij} \qquad (5.12)$$

On a simple objective of obtaining the maximum output for a given change in final demand, the basic IO approach would suggest that the demand should be in the industry with the greatest O_j. This ignores the possibility of there being distributional or strategic reasons why one may not wish to do this and, of course, one may not have any discretion in targetting increases in final demand. More importantly, it ignores the possibility of there being capacity constraints which would prevent the full multiplier effect from being achieved. If any industry *i* faces a capacity constraint then l_{ij} is constrained and O_j is under-attained, the more so the larger is l_{ij}. Such constraints will exist in practice (and IO analysis can be used to identify where they are likely to occur), or the supply of primary inputs could be limited, so that multipliers calculated from (5.12) will be biased upwards. Nonetheless, relevant conclusions can be drawn from the relative values and order of magnitude of multipliers for different industries.

So far we have been talking of *open* IO models where only industries are included in Θ and, by implication, in **L**. It can be argued that households should be included in the inter-industry matrix since they constitute such a large part of final demand while consumption relates directly to income which, in turn, depends on the demand for labour in each industry. On this basis, the household sector is

sometimes moved inside the matrix and the IO model is said to be *closed* with respect to households. This is not normally done for other components of final demand because their magnitude and relationship to primary inputs is less.

Although the assumptions embodied in the IO model, as stated under (5.7) above, are restrictive they are not entirely unreasonable for short-run production functions. Closing the model for households, however, applies these assumptions to consumer behaviour which results in what we consider to be untenable restrictions. In particular, where h denotes households, the θ_{ih} are the average propensities to consume the output of i; the assumption that they are constant implies that they equal the (also constant) marginal propensities to consume. This, in our view, is a substantive theoretical objection to using closed models, and we do not use them. We make these points because closed models are often used for calculating multipliers on the justification that increases in output will increase income and generate demand for more output. Closing the model incorporates these effects and yields multipliers with a greater magnitude than those estimated from (5.12).

Income Multipliers

As mentioned earlier, an output is matched by an income effect. The income multiplier, the effect of an increase in final demand for an industry on the income of households, need not be of the same relative or absolute magnitude as the O_j. The direct income effect is on those employed in the industry i but there will be indirect effects on all industries supplying inputs to i. The household income multiplier, H_j, is the portion of increased output which accrues to labour inputs:

$$H_j = \Sigma_i \, \eta_{hi} . l_{ij} \qquad (5.13)$$

where

η_{hi} = labour's share of total inputs to industry i.

Note that the H_j relate only to total labour income and are independent of whether the increase is due to higher pay or increased employment; increases in investment income, to shareholders for example, are excluded from this approach. A multiplier is formally the ratio of direct and indirect effects to the initial injection of demand,

which is taken to be a single currency unit and is ignored in (5.12) and (5.13). While the initial effect of £1 demand on output is £1 of output, this need not hold for the effect on income. Moore (1955) argued that the initial effect on income is $£1/\eta_{hi}$, which leads to what is termed a Type I income multiplier equal to H_j/η_{hi}.[2] As for the closing of IO models (which would yield a higher income multiplier), we mention this measure only to argue that we consider it inappropriate. Inherent in the multiplier concept is the fact that it is the initial expenditure that is being multiplied. Hence, the Type I measure exaggerates the size of the true multiplier, a point succintly understated by one commentator:

> Instead of forming a ratio between the ultimate increase in income and the increase in expenditure, as is usually done, Mr. Moore takes the ratio of the ultimate increase in income to the immediate increase in income. (Moses, 1955: 152)

To reiterate our principle argument, the appropriate measure of a multiplier effect is the increase in output or income relative to the initial injection of demand, as measured in an open IO model. There are two advantages in using the forms (5.12) and (5.13). First, it is computationally easier to estimate them since the closed model requires the calculation of a second Leontief inverse from a larger matrix. Secondly, the estimated multipliers are smaller in magnitude, which makes some allowance for the fact that capacity or input constraints in any industry imply that an estimated multiplier may not be fully realised.

Employment Multipliers

Much of the existing literature on the impact of aid has emphasised the effects on employment; we will have much more to say about this but, for the present, it is useful to define employment multipliers (Ω_j). These can be calculated in exactly the same way as income multipliers provided there is information on industry employment (w_i). The employment, measured in physical labour inputs, resulting from increased demand is:

2 Miller and Blair (1985) use the term Type I multipliers but Moore (1955), in the context of regional IO analysis, actually used the term 'simple' income multiplier for this measure. If Moore's approach is used for a closed model, the result is a Type II income multiplier.

$$\Omega_j = \Sigma_i (w_i/q_i).l_{ij} \quad (5.14)$$

The actual value for Ω_j will be quite small since it represents the number of jobs created per additional £1; in practice, the currency unit would be £1m which gives more readable figures. The calculation of w_i/q_i is discussed in Chapter 6. It only remains to note that IO multipliers can be calculated in respect of any primary inputs and, indeed, we will calculate them for imported inputs and taxes on intermediate inputs. The procedure is analagous to that discussed above.

5.4. The Data and the Method Used

The data on which our analysis is based are estimated total aided exports for 1978-84, classified by industry, in current prices (May, Schumacher and Malek, 1989); these are presented in some detail in Appendix A, which describes the adjustments made so as to render the source data compatible with the IO model used. A separate, and more suitable, data set was available for ATP and is discussed in Chapter 8 and Appendix B. The principal deficiencies in the data were that it was not possible to identify the values of individual parameters in (5.1), although the overall value of ρ could be inferred, or in (5.2), since the distribution of aid by industry was unknown; nor was it possible to identify the year in which exports were won, nor the length of time over which the order was met, ie. it was not possible to even approximate elements of equation (5.4). Essentially, the base data presented an estimated value of **x** covering the period 1978-84; our first problem was how to link aid and aided exports for particular years, which required assuming time lags and breaking down the elements of **x**, so that (5.11) could be estimated (where **x** = **d**, **L** is derived from IO Tables and **q** is to be estimated).

Input-Output Tables for the UK were available for two relevant years, 1979 and 1984 (Business Monitor, 1983 and CSO, 1988, respectively), although since the basic structure of the economy changes slowly, Tables are useful over a number of years (CSO, 1988:11). Our intention was to estimate the amount of economic activity accounted for by aided exports over the period 1978-84 on average and specific estimates for 1980 and 1985. Distinguishing the data on **x** for the latter years required two assumptions. First, that the value of aided exports over time is

proportional to the value of UK aid with a one year lag, ie. we assume $l = 1$ for all aid and industries in equation (5.4). Thus, exports due to bilateral aid in 1980 as a share of the known total over 1978-84 are assumed to be the same proportion as 1979 tied bilateral aid was of total 1977-83 tied bilateral aid. Similarly for multilateral aid and exports (Appendix A).

Second, we assume the distribution of exports by industry to be the same in each year and equal to the period average. This is clearly untrue but is necessitated because only the average, or more accurately the total over the period, is known, and is consistent with the prior assumption that the lag is one year for all industries. These assumptions are not as restrictive as they may seem. It is reasonable to expect a time lag of about a year between the granting of aid and the negotiation of export orders; a shorter period is unlikely given the normal length of time taken to disburse aid while a longer period is more likely to be an exception rather than the rule. Although the exports themselves will occur over a longer period, depending on the nature of the product, firms will begin to plan and place orders once the agreement is reached, so they will start to impact immediately.

Furthermore, since there will be random changes in the industry distribution of aided exports and, indeed, of IO linkages and economic activity, on a year to year basis, it is appropriate to base our arguments on a period average, and to estimate values for each end of the period. It is important to emphasise that *we estimate retrospectively the outputs of various industries that can be attributed to the volume of aided exports in the relevant period.* This gives an indication, but not a forecast, of the importance of aid now or in the future.

Aggregation of IO Tables

The 1979 IO Table for the UK comprises 100 industries, and the 1984 Table has 102; the data on aided exports, however, covers a smaller number of industries. Tied aid benefits only a few industries directly, and it would simplify the computations and presentation of results to aggregate some industries to create a smaller matrix. Aggregation introduces bias: let the total change in output, the impact of a given increase in final demand, $\Delta \mathbf{d}$, calculated using the disaggregated

matrix, be Δq_1 and let the impact using the aggregated matrix be Δq_2. These two measures will differ by an amount representing the aggregation bias, save in two cases for which $\Delta q_1 = \Delta q_2$ and the bias is zero (Miller and Blair, 1985:178-81):

i) If the industries that are aggregated have identical input structures, ie. their respective vectors of technical coefficients are the same. This is unlikely to arise in practice.

ii) If those industries that are aggregated are not directly affected by $\Delta \mathbf{d}$, ie. there is no increase in final demand for their products. This meets our purposes since many IO industries do not win aided exports while those that do are known.

The process of aggregation is quite simple. Where the initial matrix, $\mathbf{Z}^*$, is of dimension n by n, and the aggregated matrix, $\mathbf{Z}$, is to be of dimension m by m, we construct an aggregation matrix, $\mathbf{N}$, of dimension m by n with elements either zero or unity. The elements in the i^{th} row of $\mathbf{N}$ which are unity represent the sectors in $\mathbf{Z}^*$ which will be combined to form the i^{th} sector of $\mathbf{Z}$. The aggregated matrix is then given by the equation:

$$\mathbf{Z} = \mathbf{N} \cdot \mathbf{Z}^* \cdot \mathbf{N}' \qquad (5.15)$$

where $\mathbf{N}'$, the transpose of $\mathbf{N}$, is an n by m matrix with elements of unity in the j^{th} column representing the industries combined to form the j^{th} sector of $\mathbf{Z}$.

Similarly,

$$\mathbf{D} = \mathbf{N} \cdot \mathbf{D}^* \qquad (5.16)$$

and

$$\mathbf{F} = \mathbf{F}^* \cdot \mathbf{N}' \qquad (5.17)$$

where $\mathbf{D}^*$ and $\mathbf{F}^*$ are the original pre-aggregation matrices of final demands and primary inputs respectively.

Formal Model for the Impact of Aided-Orders

From the full 1979 and 1984 IO matrices of 100 and 102 industries respectively, we construct aggregate matrices with the 28 industries listed in Table 5.1 (page 114

below) and calculate the Leontief inverse for each. Retaining the standard notation but remembering that we are now refering to aggregate matrices, the value of the output (**q**) required to support the volume of aided exports (**x**) for each and all industries is given by equation (5.11). We then decompose **q** into its constituent inputs by calculating:

$$\mathbf{F} = \Phi \,.\, Q \qquad (5.18)$$

where Q = diagonal 28 by 28 matrix of total output required to meet the aided exports, ie. industry outputs are along the principal diagonal and all other elements are zero,

Φ = the 5 by 28 matrix of Input coefficients (z,m,t,h,π, see below),

F = the 5 by 28 matrix of **q** in (5.11) decomposed into its inputs.

Equations (5.11) and (5.18) are the ones estimated. The IO Tables identify five inputs which are included in **F**, as previously discussed in reference to Figure 5.1. The value of output met by intermediate inputs from other industries is z; m is the output accounted for by imported inputs (with an i-vector of 28 input coefficients $\Phi_{\mathbf{m}}$); t is the value of taxes on material inputs (with coefficients vector $\Phi_{\mathbf{t}}$); h is labour inputs (and $\Phi_{\mathbf{h}} = \eta$) and π is profits and trading income (with Φ_{π}). By disaggregating **q** into the input components we have been able to carry out a more extensive analysis of the impact of aid, as in the next few chapters.

We can express the elements of **q** in terms of the elements of **L** and **x**. For an economy with n industries, and in this study $n = 28$ for bilateral and multilateral aid, the aid induced output of the i^{th} industry is:

$$\mathbf{q}_i = \Sigma_j \, l_{ij} \,.\, \mathbf{x}_j \qquad (5.19)$$

In (5.19) the l_{ij} represent the impact of an increase in demand for the products of the j^{th} industry on the output of the i^{th} industry, and the $\mathbf{x}_j$ measure the value of the increase in the demand for the produce of industry j. That is, aided exports are an increase in demand for some industries and we measure the increase in total

output, by industry, to meet the increased demand for all industries, ie. the share, in value terms, of total economic activity attributable to export demand from aid.

Table 5.1: Industries in the Aggregate IO Matrix

1.	Mineral Oil Processing	(MOP)
2.	Iron and Steel, Steel Products	(I&S)
3.	.non-Metal Mineral Products	(nMMP)
4.	Fertilisers	(Frt)
5.	Pharmaceuticals	(Phm)
6.	Metal Goods n.e.s.	(Mtl)
7.	Industrial Plant and Steelwork	(IPlt)
8.	Agricultural Machinery, Tractors	(AMch)
9.	Textile, Woodwork etc. Machonery	(TWMch)
10.	Process Machinery and Contractors	(PMch)
11.	Mining, Construction etc. Machinery	(MCMch)
12.	Other Machinery, Mechanical Equipment	(OMch)
13.	Office Machinery, Computer Equipment	(OfEq)
14.	Insulated Wires and Cables	(IW&C)
15.	Basic Electrical Equipment	(ElEq)
16.	Telecommunication etc. Equipment	(TlEq)
17.	Electronic Components, sub-Assemblies	(ECA)
18.	Motor Vehicles and Parts	(Mot)
19.	Shipbuilding and Repairs	(Ships)
20.	Other Vehicles	(OVch)
21.	Instrument Engineering	(InstE)
22.	Timber, paper, rubber, plastics	(TPRP)
23.	Construction	(Const)
24.	Banking, Finance and Insurance	(FSer)
25.	Agric., utilities, metals and chemicals	(MiscP)
26.	Miscellaneous engineering and manufactures	(MiscM)
27.	Food, drink, tobacco and clothing	(FDTC)
28.	Miscellaneous Services	(MiscS)

NOTE: See Appendix A for more detail.

5.5. Limitations of the Method

There are two general sources of limitations in the method oultined as a means of estimating the impact of aid on the UK economy: those inherent in IO Tables and those resulting from data deficiencies which act, and interact, in two ways. First, there are factors preventing us from applying the model as set out in Sections 5.1 and 5.2. Second, this model itself does not address the range of issues relating to impact as set out in Chapter 3. The principal limitations of the data have been set out in the previous Section, are addressed in detail in Appendix A and are discussed in subsequent Chapters. Consequently, attention here is confined to those limitations pertaining to the IO method *per se*. We consider only two: classification of industries and the static nature of our approach.

Classification of Input-Output Industries

The data on which IO Tables are based derive from survey material collected at the level of business establishments, which correspond roughly to the theoretical concept of the firm. Implicit is the view that firms (or at least plants) are specific to industries and that industries produce a single product. In practice, firms and industries are multi-product. By convention, firms are allocated to the industry appropriate to their primary product, that which accounts for the largest share of their output. This leaves a problem regarding the proper treatment of secondary products although, as will be shown, this is not a serious consideration for us.

Recall that IO embodies a production function with fixed technical coefficients for each industry. This implies that each industry has a fixed production technology, which is not unreasonable for single-product industries, and it is therefore inaccurate to include in that industry a secondary product with a different production technology. The recommended procedure is to reclassify secondary products to their respective industries. One way of doing this is to treat secondary products as being sold from the producer industry to the appropriate industry. In this way they are properly allocated to consumers but, since they are treated as fictional inter-industry trade and as final sales, they are double-counted and total output is inflated by their value. This approach is probably satisfactory if secondary products are not considered as very significant (for most industries they account for

less than 20 per cent of output) and is largely unavoidable if the associated inputs cannot be separately identified.

Provided their input structure is known, secondary products can be allocated to the correct industries without any double-counting. The best way of doing this is to use the 'commodity by industry' IO Tables. In these, the rows represent the demand for commodities, for which each product is independently classified and there is no secondary product problem; final demands are by commodity. The columns represent industry purchases of commodities as intermediate inputs. Although this matrix is not identical to the 'industry by industry' IO matrix, there is a general correspondence between commodity and industry classifications and it is this matrix from which we calculate the Leontief inverse. The basic interpretation of the results is as discussed, and there is the added advantage that the commodity classification is consistent with our data, especially in the case of ATP.

The Static Nature of Input-Output

The IO Table for a given year is a snapshot of the economy rather than a movie so that our approach does not capture any dynamic effects af aided exports. It must be emphasised that this is a limitation of our analysis, not of IO: the IO method itself is flexible and dynamic models exist at both the theoretical and empirical level (see Leontief, 1988, especially discussion of the dynamic inverse). The static model is suitable for our purposes and, in fact, our data base is barely adequate for this model, never mind one more complex. There are a number of questions which the static model, and hence our analysis, is ill-equipped to answer.

First, the Leontief inverse is calculated from the **Z** matrix and is independent of which component of final demand is increased; the measured impact on industry outputs will be the same for a given increase in any component of final demand. This is not fully satisfactory from a macroeconomic viewpoint since one may believe that an increase in export demand has different implications to an increase in, say, demand from government or investment. If there are differences, however, they are likely to be manifested in firm's expectations or competition, not in the derived demand for inputs. Thus, an increase in aided exports may encourage a

firm to give more thought to overseas operations, even to setting up an office abroad, and may affect strategic planning. Increases in government demand may, on the other hand, sometimes be seen as a windfall gain. In either case the effect on the demand for inputs is the same, and depends on the existing inter-industry structure. In other words, dynamic and especially behavioural effects may differ but the structural implications, in immediate gross terms, are the same.

Second, and related, is the particular case of consumer demand and its relationship to household income. Following from the earlier discussion of income multipliers, there is the potential for a Keynesian multiplier effect. An increase in final demand will increase the demand for labour inputs, amongst others, which can in turn increase consumer demand. The use of an open IO model implies that this potential effect is not being picked up. There are two reasons why we do not consider this of major concern. First, any effect is likely to be fairly small, given that aided exports are small in macroeconomic terms, and will depend on marginal propensities to consume whereas the IO Tables only incorporate average propensities. Secondly, the argument for a Keynesian multiplier rests on there being an injection of *new* demand, whereas we are estimating the share of activity due to **x**. The issue is relevant, but not intrinsic.

Third, the IO approach does not incorporate displacement, radiation or substitution effects. While we acknowledge their potential importance, we stress again that the IO analysis is being used to estimate the gross commercial benefits from aid. The trade creation and opportunity cost issues can be explored to investigate the extent to which aided exports are necessary to achieve the indirect benefits, and to examine the justifications for tied aid. These issues need to be addressed, but can be treated separately after the commercial benefits have been estimated. Having detailed the model that we employ, we can now turn to a presentation and discussion of the estimates. Attention is confined to tied bilateral aid, multilateral aid and the ATP, which are treated in separate Chapters. They will be brought together in Chapter 9, which utilises the IO model to estimate the impact of alternative aid policies and to try and account for some opportunity costs.

CHAPTER 6. THE IMPACT OF TIED BILATERAL AID

The greater part of UK Bilateral Aid is tied, over fifty per cent in 1983 and roughly two-thirds in 1987 (ODA, 1988:xii), meaning that it must be used by the recipient to purchase goods and services from the UK. As detailed in Chapters 3 and 5, this generates exports, with associated benefits in terms of output and employment, which in turn generate tax revenue. These benefits are often cited by business interests as justifying an increased use of tying. The principal objective of this chapter is to quantify and evaluate the impact of tied bilateral aid (TBA) on the UK economy. The analysis is confined to the impact of orders directly associated with TBA; excluded are benefits from ATP (Chapter 8), TCA and untied Bilateral Aid (but see Section 6.5 and Chapter 9). Also, at this stage we make no attempt to account for the impact of orders indirectly associated with aid such as spare parts, follow-on orders or contracts paid out of the untied aid of other donors.

Section 6.1 reviews the nature of the direct benefits from aid: the process by which firms win aided exports, the importance of these to firms and how they help form business views on UK aid policy (which, as argued in Chapter 4, are not without influence on government policy), and the differences in the importance of aid to various industries. The estimated impact results are then presented. Section 6.2 generalises the results by focusing on their significance for the economy and major industrial groupings. The basic results are presented at a fairly detailed level of industry disaggregation in Section 6.3. In Section 6.4 we consider some extensions of the analysis, in particular an example of how industry multipliers can be used to provide impact estimates for individual projects, and consider whether TBA is trade-creating. A summary is presented in Section 6.5, which also reiterates some of the limitations of the approach.

6.1. The Direct Benefits of Tied Bilateral Aid[1]

In this section we wish to distinguish the views of different industries on aid; although we here refer to TBA, the arguments will be applied to other forms of aid

[1] Much of this section is based on discussions with representatives of major firms, consultants and business lobbies, to all of whom I am grateful.

in subsequent chapters. The potential benefits from aid depend on a firm's activity in aid-recipient countries, which will tend to be greater in some industries than in others, and for large firms rather than small ones (many of the issues are closely related to those in Section 4.2). While large firms are more likely to export to LDCs, many small firms do so successfully, and more might do so if they received more assistance or encouragement from the government. We will argue that in certain industries the benefits are more likely to go to large firms and that, because aid is more likely (in volume terms) to be tied to the type of products exported by these firms, large firms derive by far the greater share of direct benefits.

Business Benefits from TBA

The views of an industry towards aid will be shaped by the importance of LDC markets and the extent to which prominent firms are engaged in overseas activities in LDCs. The economy is a network of business interests; increased exports for one industry will benefit others and there will tend to be a shared attitude towards aid. Four broad interests can be distinguished. There are consultancy firms, the foremost of which, at least in terms of overseas markets, are Consulting Engineers. Related to these, and dominating trade with LDCs, are the large contractors who compete for major projects overseas, normally based in construction and engineering. Next come the manufacturing industries which export to LDCs in their own right and as suppliers to contractors. Finally, there are supply and support industries which tend to benefit only indirectly.

Parallel to this industry distinction, but not necessarily in direct correspondence, is the distinction between the types of projects that can be won. First are the long-term planning projects, usually financed by MAAs, and feasibility studies for individual projects, often financed by bilateral aid. This stage can be viewed as establishing the set of potential projects, and is a major source of business for consultants. The second stage, once a project has been selected from the set, is the design phase which is normally open to international tender and, unless financed by an MAA, the succesful bid will normally require an aid element. This stage is also primarily a source of business only for consultants, although they are in much closer contact with potential contractors (which threatens their impartiality).

The third stage, which is often combined with design, is the construction project itself and the tendering process is subject to competition. A contractor is more likely to win a project if it can minimise competition, which suggests a number of strategies. First, close contacts with the consultant gives contractors a 'foot in the door', and can lead to a design specification that favours them. Second, if the project is financed by TBA they only need to compete with other firms in the donor country. Third, and more generally, they can cultivate relations with the host country, best exemplified by setting up local offices which represent a local commitment, or with the financing body, so that major firms keep in close contact with MAAs. Finally, early information can be very advantageous to a potential bidder, thus they cultivate local contacts and links with consultants and MAAs, as stated, but also seek the government, via its overseas missions, to assist them, at least by providing information on potential contracts (as done by the DTI) if not by actively promoting the company. Furthermore, a successful bid will generally require an aid element, which is the most direct help the government can give. The two core issues here are the speed at which aid can be agreed and the volume of aid available, both relative to other donors.

The three stages of a construction project provide the principal opportunities for British firms to win aided exports. The international prominence and reputation of British consultants provides a relatively high success rate in the first two stages. This is partly because UK consultants are from large, long-established and very experienced firms but is not unrelated to the perception that they are impartial and, unlike many consultants from other countries, will not try to promote UK contractors or suppliers in their report (nonetheless, British firms are far more likely to win orders if UK consultants are involved). The relative level of UK success tends to be lower in the third stage, largely because international competition is far greater but partly because the UK deploys a lower volume of aid than other major donors and, in the views of business, does so relatively less efficiently in terms of maximising commercial gains.

We do not wish to give the impression that construction projects are the only source of aided exports, but they do account for about three-quarters of the total.

Manufacturers benefit in a number of ways. First, some win aided exports, most commonly for ships, railway equipment, coaches, agricultural machinery and chemicals. Second, many win orders to supply contractors which fall into two types. Major orders are similar to sub-contracting and, effectively, the manufacturer wins an aided export via the contractor. Supply orders arise where the contractor manufactures the aided export but requires inputs from others; these are measured as indirect benefits in the analysis of the impact of aid.[2] Third, manufacturers will benefit from spare-part and maintenance orders, although these will tend to be future benefits and are not financed by aid (if they were, they would appear as aided exports for the manufacturer). In discussing aided exports related to large projects we will refer to the contractors and may often attribute all of the direct benefit to them; since most large contractors are conglomorates with manufacturing plants or subsidiaries, this is not unreasonable.

Finally, let us briefly distinguish the various forms of project finance. In the case of TBA, the donor pays for some portion of the project, not necessarily all, and exports accrue to the donor industries without international competition. If projects are paid for by MAAs, the orders are open to international tender and no aid element is required. Where the host country is financing the project, or controls the funds made available to it, competition is normally international and an aid element is usually required. It is becoming increasingly common for major projects to be undertaken by a multinational consortium or joint venture, where a number of donors and MAAs provide finance (a firm must usually have prearranged aid so as to buy in to the venture). In this chapter only exports financed out of TBA are relevant, and their importance is discussed in respect of the various business types.

Consultants

Engineers are the consultants most directly concerned with aid and LDCs account for over a third of their overseas business (Association of Consulting Engineers, 1987). They are internationally very competitive with a success based on a

2 The data on aided exports measure the commodities exported, not the firm involved, and will therefore include major orders, as defined here, but not supply orders. Aid is important to firms, as discussed here, but the data are for commodities/industries. We will be able to consider firms when discussing ATP, the data for which identify the companies involved.

reputation for providing top quality impartial advice. British consultants are less likely to favour British contractors, by providing them with advance information or by writing them into the specification, than are consultants from other countries to support contractors in their own country, and have come under attack for this reason (Mansfield, 1987a, argues that no more than a quarter of British consultancy in LDCs results in orders for British contractors). However, it is precisely this impartial attitude which underpins their reputation and success (and consultants claim that contractors often fail to respond to the information they are given). The share of British firms in new international design contracts rose from 12.7 per cent in 1985 to 13.6 per cent in 1986, behind only the US and much higher than the share of British contractors in international business (Thomas, 1987:35).

In the 1980s roughly a third of consultancy contracts in LDCs resulted from 'direct-targetting', where the firm itself identified a potential study and approached the host government, whereas over half resulted from local contacts and offices (Mansfield, 1987b:1228). In these situations aid support is essential and the consultants are unhappy with British aid which has failed to meet their needs (see Section 4.2). The cost of a major feasibility study is very high and can only be borne by large firms; given the low success rate of turning a study into a design contract, even the large consultants seek support to compete widely. The lack of adequate aid support has forced consultants closer to contractors which limits their ability to be impartial. The Overseas Projects Fund will finance half the cost of a feasibility study, to be repaid if successful, without a formal requirement to guarantee that orders will go to British contractors. However, major contractors are often approached to finance all or part of the remaining costs and will wish a guarantee of orders if the project materialises. There is an increasing tendency for consultants and contractors to work more closely, often forming joint ventures; contractors provide finance and consultants provide local contacts and intelligence, and base specifications on British products.

Other types of consultants, especially in agriculture, work in LDCs but the size of their projects, and the total volume of work, tends to be smaller than for engineers. There is a trend towards polarisation between large international firms with a

network of local offices, and small specialised firms who are successful overseas but tend to concentrate on Europe and the Middle East. The BCB, of which engineers are slightly less than a third of members, argues for more aid support to consultants, especially small firms.[3] They point out that specialised firms are often very competitive but cannot afford the costs of investigating LDC markets.

Contractors

The contractor industries are general construction, civil engineering (including irrigation) and heavy engineering, including chemical and industrial plant and power generation. The UK share of new international construction contracts in 1986 was 9.5 per cent, worth some $7bn, behind only France, Japan and the US. (Thomas, 1987:35). Its share of LDC markets was somewhat lower, at 8.9 per cent for the period 1982-86, well behind Italy, France, Japan and the US (Thomas, 1987:4). A number of reasons have been put forward to explain Britain's relatively low share of LDC markets.

The first is that British firms tend to be cautious and were slow getting into LDCs so that competitors had time to establish a local presence and reputation, gaining a first mover advantage. Second, foreign firms have displayed a greater willingness to establish a local presence and provide long-term backup for completed projects (particularly true for the French and Germans). Third, competitors have had more, and better coordinated, support from their governments: larger volumes of aid, with effective use of tied aid and mixed credits; quick decisions on granting aid; long-term credits at competitive rates and a willingness to provide long-term aid so that completed projects can be maintained. This argument is most convincing for French, Japanese and, in the 1980s, Italian firms but German and American firms are unlikely to get any more assistance from their governments than do UK firms (see Morrissey, 1989d). Finally, it has been argued that British firms are not price competitive and, in particular, try to charge higher prices if a project is tied to UK aid. While this may be true for particular firms, we do not consider it a convincing argument for UK industry in general.

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3 In 1988 some 32 per cent of BCB members were engineers, 12 per cent were architects and planners, 10.5 per cent were management and economic and 6.5 per cent were agricultural.

Most businessmen agree that the single most important factor in overseas success is having a local presence; the best source of information on forthcoming contracts is the intelligence derived from being in a country, which also provides the opportunity to identify potential projects, and firms need to establish a reputation. However, overseas operations are risky and expensive to administer and the cost of maintaining local offices, or establishing subsidiaries, can only be borne by large firms. One of the major benefits of aid to firms is that it helps them to get into LDC markets, allowing them to demonstrate their capability, make local contacts and hopefully win follow-on orders. For example, Balfour Beatty obtained a project in Indonesia in the early 1970s with aid support and then formed a joint venture with their Indonesian sub-contractor; they have subsequently been quite successful in winning contracts in Indonesia (Pick, 1983). Because LDC governments are severly resource constrained, especially in the 1980s, and competition for orders is intense, aid can be almost a prerequisite:

> A large part of the world capital projects market is now open only to those companies which can demonstrate the technical and managerial ability, plus the resources and experience to execute the project ... provided that the company can make available a finance package as good as those on offer from ... competitors. (McGregor, 1985:11)

Manufacturers

Roughly a quarter of aided exports went to non-contractor manufacturing industries, mostly chemicals and vehicles. Manufacturers are distinguished from contractors by the nature of their products and the importance of LDC markets. In particular, while construction is clearly a new product (although the capital equipment involved need not be), manufactured exports could well be from surplus stock and would therefore generate few benefits for other industries. On the other hand, it is better for firms to be able to sell surplus stock and so engage in further production. Thus, the impact is the same but the dynamic gains may be less. Manufacturer's exports to LDCs are rarely sufficient to justify the expense of overseas offices, but this is not to deny that there are many opportunities.

The Chemical Industries Association (CIA), which can be taken as representative of manufacturers, emphasises that due to the nature of most chemical products, as

consumable raw materials, LDCs do not at present feature prominently in the industry's growth plans. However, exports are important and aid assists market penetration in the usual ways: chemical products are required in many projects; chemicals will be demanded as production inputs to meet increased UK output and local presence helps to secure future orders. The CIA argues for a more commercial aid policy but would like to see a shift in emphasis away from large capital projects and major contractors towards the smaller firms, which are often more competitive. In a number of cases, not usually in chemicals, small firms can be the most likely to supply small-scale, appropriate technology.

6.2. The Impact of Tied Bilateral Aid

The general results on the impact of TBA are given in this section, identifying the major industrial groupings which benefit and evaluating the importance to the economy. Detailed results by industry, on which this section is based, are presented and discussed in the next section. We begin with the estimates of total impact and, in so doing, explain the procedures used to estimate both employment effects and the effect on tax revenues. We then consider how the benefits differ between industrial groupings, a process of disaggregation taken further in the next section.

The Overall Impact on the Economy

The total value of aided exports due to tied bilateral aid over 1978-84 inclusive was £1327m, and the total value of TBA over the same period was £1969. Some 17 per cent of the TBA total was granted in 1979 and, on the assumption that aided exports were proportional to aid with a one year lag (see Appendix A), this leads to an estimated x_τ of £224m in 1980 for aid of £339m in 1979. Similarly, £157m of x_τ in 1985 are associated with the £237m of TBA in 1984. This procedure is less than perfect but gives a reasonable value for the export ratio ($\rho_\tau = 0.66$) and accounts for the fact that aided exports will fall as the volume of aid falls.

Thus, the direct benefit from TBA is estimated as £224m in 1980 and £157m in 1985, a decline reflecting the reduction in TBA over the period. The 1979 IO Table was used to estimate the impact of exports worth £224m in 1980, and the 1984 IO Table was used for 1985. Consequently, the procedure assumes a constant export

ratio but accounts for the declining volume of aid and the changing structure of the UK economy. The latter is important since structural shifts are reflected in changes in the elements of the **L** matrix, and hence affect impact. Since we have to assume the distribution of x_τ by industry is unchanged over the period, we are unable to allow for the possibility that this distribution will itself alter to match shifts in the economy. Given the data available, our procedure does apply the model of Chapter 5 and, at a minimum, identifies the order of magnitude of the impact of TBA.

The effect of the changing structure of the economy is encapsulated in two aggregate output multipliers: Q_a represents the total output in the economy per unit of aid, and fell from 1.20 (output worth £408m) in 1980 to 1.14 (£271m) in 1985; Q_{xa} represents the total output per unit of aided exports and fell from 1.82 in 1980 to 1.73 in 1985. For TBA, since ρ_τ is considerably less than unity Q_τ is less than $Q_{x\tau}$ because the former incorporates both ρ_τ and $Q_{x\tau}$.[4] This fall in aggregate output multipliers reflects a reduced inter-dependence between the x_τ-industries and the rest of the economy, ie. the technical coefficients for these industries fell. Demand for intermediate goods benefits the economy via **L** but if this demand leaks to primary inputs the direct benefit will be lessened. The net effect on the economy depends on which primary inputs have become a greater share of output.

If demand shifts to imports, which are leakages from the economy, the net impact will be less. The same is true if the shift is to taxes, although this depends on how the government allocates the increased revenue. If the shift is to labour income, the loss of benefit will not be as great as in the previous two cases, although leakages from income to imports, taxes and saving suggest a lower net benefit than had the demand gone on intermediate inputs. The primary input coefficient that did increase most over the period 1980 to 1985 was, in fact, profits; the net effect on the economy depends on how these additional profits were used, a subject on which our analysis cannot comment. Because the share of intermediate inputs in total inputs fell, the immediate impact declined slightly between 1980 and 1985.

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4 In fact, $Q_\tau = \rho_\tau Q_{x\tau}$. Note also that these aggregate multipliers incorporate the combined effect of aided exports on all industries, via **L**, and are therefore different to the output multipliers for individual industries discussed in Section 5.3.

The next issue to consider is the level of employment associated with q_τ, the output required to produce x_τ. A variety of means of estimating employment effects were discussed in Chapter 3 but the approach we adopt differs and is, in our view, more appropriate. The existing studies which apply IO to measure the impact of aid estimate employment by, first, using the labour input coefficient (ϕ_{hi}) to estimate the share of total output (q_{ai}), in value terms, that will be spent on labour inputs and, second, dividing this by the average industry wage (May, Schumacher and Malek, 1989). This measures the number of average wages covered by q_{ai}. We favour an approach based on the industry employment-output ratio, W_{qi}, the number of employees per £1m of industry output. This ratio explicitly incorporates productivity and is unaffected by the method of payment (wage, bonus, etc.) or the aggregate level of remuneration; it is a technical parameter more in keeping with IO analysis. Applying this ratio and summing over all industries, we estimate that TBA indirectly supported some 17,577 jobs in 1980 and 8,609 in 1985. Alternatively, the number of employees per £1m of aided exports, $W_{x\tau}$, fell from 78.5 to 54.8, and the number of employees per £1m of TBA, W_τ, fell from 51.8 to 36.3. Not only did the level of employment supported by TBA fall, which would be expected given the fall in aid, but also the employment potential fell. This was due partly to the reduced $Q_{x\tau}$ but mostly to increased labour productivity, a point amply captured by our use of W_{qi} and discussed in more detail below.

The next issue is the indirect effect of aid on government tax revenues, which arises from a number of sources. First, there are taxes on intermediate inputs, the total value of which is $\Sigma_i \phi_{ti}.q_i$ and was £6.9m in 1980 and £4.96m in 1985.[5] This provides direct revenue, but the government will also receive revenue indirectly through taxes on increased income and profits. The value of labour income associated with x_τ is given by $\Sigma_i \phi_{hi}.q_i$ and was £128.3m in 1980 and £84.9m in 1985. Similarly, the total value of profits was $\Sigma_i \phi_{\pi i}.q_i$, equal to £39.8m and £36.4m respectively (the relative rise in profit's share mentioned above is reflected

5 Recall that Φ is the matrix of input coefficients, hence Φ_t is the vector of coefficients for taxes on intermediate inputs (with corresponding interpretation for the subscripts h, π, and m), and ϕ_{ti} is a scalar for industry i. For details of the calculation see Appendix Tables A.4 and A.5. The values of the input coefficients for 1984 are in Table A.9.

in the fact that the value of profits fell by only 8.5 per cent, compared to a 33.8 per cent fall for labour income, between 1980 and 1985).

Any estimate of the tax take from these income figures is bound to be *ad hoc*; the formal tax rate (tax burden after allowances, etc.) on a basic wage was 19 per cent in 1980 and 24 per cent on twice the basic wage (Morrissey and Steinmo, 1987), excluding national insurance, but marginal tax rates were much higher. Assuming that most of the employment was at the basic wage, and making some allowance for higher tax rates, perhaps 25 per cent went in income tax and national insurance, yielding £32.1m. Corporation tax is impossible to estimate; the nominal rate was 52 per cent but few firms paid this and many paid nothing (Kay and King, 1983). We feel that 20 per cent is a generous estimate of the effective average rate, yielding £8.0m. The total estimated tax revenue from q_τ in 1980 is therefore £46.9m, representing almost 13.9 per cent of TBA. The same approach can be applied to the 1985 figures. The formal income tax rate had fallen but national insurance contributions rose and we retain the figure of 25 per cent, yielding £21.2m income tax. The effective rate of profit tax had increased after the 1984 reform to about 30 per cent (Devereux, 1987); on the estimated profits this yields £10.9m in tax revenue. Total revenue to the government was about £37.1m, 15.7 per cent of TBA. The notional rate of return to the government increased slightly, largely because a higher share of profits attracted a higher average tax rate.

The final general point to consider is transfer theory: aid is a capital outflow which reduces the balance of payments, but the size of the net transfer is lower if aid itself generates exports. One cannot simply take the value of x_τ since imported inputs are required to produce q_τ, and equal $\Sigma_i \phi_{mi} \cdot q_i$; these amounted to £45.7m in 1980 and £29.2m in 1985. Deducting these from x_τ in each year yields net trade balances of £178m and £127m, negligible relative to total exports but still equivalent to 13 per cent of the visible trade surplus, or six per cent of the current surplus, in 1980 and equivalent to four per cent of the current deficit in 1985 (trade figures from *Economic Trends*, 1988). However, since these net exports are of considerably less value than the aid outflows, TBA constitutes a net outflow on the balance of payments.

Clearly, TBA generates commercial benefits and, although these are very small relative to the entire economy, the implicit rates of return are quite good (for a summary of the results and comparison with multilateral aid, see Section 7.2). Taking simple averages for 1980-85, each £1m of TBA supported output worth £1.17m and 44 employees, and provided a return to the exchequer worth 14.5 per cent of its expenditure outlay. Before presenting results on impact by industry, a good appreciation of the distribution of benefits can be obtained by considering the impact on a number of industrial groupings.

The Principal Industrial Groupings

The industrial groupings are Mechanical Engineering (MecEng, mostly machinery and plant); Electrical Engineering (ElEng, mostly electrical and telecommunications equipment); Vehicles (motorised road vehicles, shipbuilding and railway stock); Chemicals (fertilisers and pharmaceuticals); the Construction and Iron and Steel industries. These six groups accounted for almost 80 per cent of x_τ in the period 1978-84 (the same, by assumption, in each year), and the values of x_τ, q_τ and w_τ for each group in each year is given in Table 6.1. We will discuss these results by reference to the issues raised above.

The importance of inter-industry linkages is obvious in that the groups accounted for only 61 per cent of q_τ in 1980 and 64 per cent in 1985. This arises as the demand for intermediate inputs goes to other industries, especially services, and the higher 1985 figure partly reflects increased profitability (intermediate inputs were a lower share of total inputs). Iron and Steel is the exception among the major industries: the demand for its output as an intermediate input to engineering and vehicles means that its share of q_τ exceeds its share of x_τ. The groups account for almost 65 per cent of supported employment in 1980 but only 51 per cent in 1985, indicating that they experienced an above average increase in labour productivity.

The reduced employment in 1985 is due mostly to increased labour productivity. Taking the average W_{qi} for all production industries the fall was from 36.6 to 20.3, almost 45 per cent. It was even more dramatic for some industries: Iron and Steel from 34.6 to 13.4 (-61%) and Motor Vehicles from 42.9 to 18.9 (-56%).

Table 6.1: The Impact of Tied Bilateral Aid on Exports, Output and Employment, Industry Groups, 1980 and 1985

GROUP	1980			1985		
	x_τ £m	q_τ £m	w_τ	x_τ £m	q_τ £m	w_τ
MecEng	72.12	84.06	3681	50.43	62.50	1586
%	32.2	20.6	20.9	32.2	23.1	18.4
ElEng	31.15	38.47	1981	21.78	25.94	804
%	13.9	9.4	11.3	13.9	9.6	9.3
Const	23.08	32.28	1564	16.14	21.50	618
%	10.3	7.9	8.9	10.3	7.9	7.2
I&S	19.65	38.50	1330	13.74	25.00	335
%	8.8	9.4	7.6	8.8	9.2	3.9
Vehicles	42.05	45.76	2527	29.40	31.52	957
%	18.8	11.2	14.4	18.8	11.6	11.1
Chemicals	8.68	10.25	259	6.07	6.74	91
%	3.9	2.5	1.5	3.9	2.5	1.1
SUB-TOTAL	177.08	249.32	11342	123.82	173.20	4391
%	79.0	61.0	64.5	79.0	63.9	51.0
ALL	224.09	408.48	17577	156.68	270.98	8609

NOTES: x_τ is exports directly due to tied bilateral aid; q_τ is the output required to meet these exports and w_τ is the associated employment. The Groups include 17 three-digit industries (defined in Appendix A) and are: **MecEng**, six mechanical engineering industries; **ElEng**, four electrical engineering; **Const**, the construction industry; **I&S**, the iron and steel industry; **Vehicles**, three vehicle industries; **Chemicals**, pharmaceuticals and fertilisers. **ALL** refers to the entire economy.

SOURCE: Own estimates using Input-Output impact analysis, see Appendix A.

Most x_τ go to capital exporters, the very industries which have to shed labour and increase productivity to be profitable (*vide* British Steel), and are not therefore an effective means to promote or protect employment, contrary to business arguments (eg. McGregor, 1987; OPB, 1988). The main source of employment is in services but is fully utilised only if linkages are high; declining linkages imply that industries able to provide employment are not called upon to do so (the values of W_{qi} are in Tables A.4 and A.5).

We acknowledge that a strong case could be made for excluding the Construction industry from the employment estimates since most employment on construction exports will be foreign workers on site. Our estimates assume the construction takes place in the UK and there are two reasons for retaining them. First, overseas employment of UK workers on construction projects is considerable. Second, the possibility of cross-subsidisation, whereby profits on overseas projects are invested in UK work, should not be ruled out. It can also be noted that x_τ account for a high share of construction exports (see Table 6.2) and LDC markets are very important (Strassmann and Wells, 1988).

The remaining issues, taxes and net exports, depend on the industry input coefficients which vary within groups and are therefore covered in the next section. The main point is that six industrial groupings account for the greater part of the direct, and indirect, benefits of TBA. Contractors, which incorporate four of the groups (MecEng, ElEng, Const and I&S), account for 56 per cent of x_τ, 48.5 per cent of q_τ and 44 per cent of w_τ on average over 1980-85. It should be remembered that within this total there is further concentration in large companies.

6.3. The Impact of TBA by Industry

The results discussed in the previous section were obtained by aggregating the industry level estimates generated by evaluating equations (5.11) and (5.18). The results, by industry, are given in Appendix A, especially Tables A.4 and A.5. The most important of the results are reproduced in Table 6.2, which considers the significance of x_τ to various industries in terms of the contribution to exports in 1985. The columns in percentage terms are respectively: $x_{\tau i}/e_i$, the importance of

x_τ to an industry; e_i/q_i, the share of exports in industry output (interpreted as the industry's export orientation) and e_i/e, the share of total exports contributed by the industry, interpreted as its export importance. So that the Table is easier to read, the values for the ten industries with the highest value in each of these columns are underlined. Also included, but given in *percentage point* changes from 1979 to 1984 are $\Delta(e_i/q_i)$ and $\Delta(e_i/e)$, which represent trends in export performance.

Some comments on figures reported only in the Appendix are warranted here. The importance of x_τ in terms of the $x_{\tau i}/e_i$ and $q_{\tau i}/q_i$ varies considerably and, in most industries, virtually halves between 1980 and 1985 (due to the combination of a falling volume of TBA and lower linkages; compare Tables A.4 and A.5). In only three industries did q_τ account for over one per cent of output in 1980: OVech, PMch and ElEq; it accounted for over 0.5 per cent of output in a further four industries (Table A.4). By 1985, q_τ exceeded 0.5 per cent of output in only four industries, and exceeded one per cent in two of these, OVch and PMch (with ElEq ranked third). It is unsurprising that UK businesses became increasingly concerned with British aid policy over this period.

Aided exports represent a considerable share of total exports for some industries, less so in 1985 than in 1980 (Tables A.4 and A.5), and $x_{\tau i}/e_i$ exceeded one per cent for eight industries. While x_τ represented 14 per cent of Construction exports in 1980 (5 per cent in 1985) this is slightly misleading since exports are a very small share of Construction output (less than one per cent in both years); the capital goods exports associated with construction projects are most likely to be classified under mechanical or electrical engineering industries, for whom exports tend to be a significant part of output. Five industries exported more than 50 per cent of their output in 1984, and for all exports became increasingly important between 1979 and 1984, and a further five exported between one third and one half, and also experienced a growing importance of exports. From Table 6.2 it is relatively easy to identify the ten industries for which e_i/q_i is greatest, and compare this with their ranking for x_τ and $x_{\tau i}/e_i$. Of the ten industries for which $x_{\tau i}/e_i$ is greatest (and near or above one per cent), eight are among the ten industries receiving the most x_τ (£5m or more in 1985) but only *two* are among the ten industries for which e_i/q_i is highest (greater than 33 per cent), namely ElEq and MCMch.

Table 6.2: Tied Bilateral Aid and Industry Exports, 1985

INDUSTRY	x_τ £m	$x_{\tau i}/e_i$ %	e_i/q_i %	$\Delta(e_i/q_i)$	e_i/e %	$\Delta(e_i/e)$
1. MOP	0.80	0.02	24.5	2.3	4.2	0.5
2. I&S	13.74	0.86	21.9	2.0	1.8	-0.7
3. nMMP	0.96	0.10	12.5	-0.7	1.1	-0.3
4. Frt	1.88	3.24	7.2	-7.5	0.1	-0.2
5. Phm	4.19	0.43	32.3	-1.9	1.1	-0.2
6. Mtl	1.12	0.19	19.0	-0.6	0.7	-0.4
7. IPlt	5.11	0.96	17.1	-9.9	0.6	-0.6
8. AMch	1.88	0.25	62.9	1.2	0.9	-0.4
9. TWMch	1.89	0.27	56.3	1.0	0.8	-0.4
10. PMch	18.22	4.09	27.1	-27.1	0.5	-1.0
11. MCMch	14.38	1.16	43.6	2.7	1.4	-0.7
12. OMch	8.95	0.44	34.9	2.5	2.3	-0.5
13. OfEq	0.64	0.03	90.0	20.7	2.6	0.9
14. IW&C	3.56	1.64	18.6	0.4	0.3	-0.1
15. ElEq	14.00	1.21	46.3	9.8	1.3	0.0
16. TlEq	3.46	0.17	35.9	6.9	2.3	0.8
17. ECA	0.73	0.06	53.1	12.1	1.4	0.4
18. Mot	12.94	0.38	34.5	-0.5	3.9	-2.3
19. Ships	5.15	1.35	18.2	-4.2	0.4	-0.2
20. OVch	11.30	6.39	23.3	-3.1	0.2	-0.2
21. InstE	1.92	0.17	52.2	5.0	1.3	0.0
22. TPRP	3.04	0.10	11.8	0.3	3.6	-0.6
23. Const	16.14	5.03	0.7	0.1	0.4	0.1
24. FSer	3.36	0.11	9.5	-7.9	3.4	-1.5

NOTE: See Table 5.1 for full industry titles; all values rounded, see Tables A.5 and A.9 for more detail. For each industry i, $x_{\tau i}$ is exports due to TBA, e_i is exports and q_i is industry output; e is total exports and Δ is change in percentage points over 1979-84. Values for x_τ, $x_{\tau i}/e_i$, e_i/q_i and e_i/e are underlined if the industry is among the ten industries for which the value is highest.

There is a tendency for $x_{\tau i}/e_i$ to be greater in industries for which exports constitute a relatively low share of demand, suggesting that x_τ are not central to major exporters (Section 6.4). We can approach this another way by considering the ten industries which contribute the greatest proportion of total exports, for all of which $e_i/e > 0.01$ and six of which each provide over 2 per cent of total exports, and we note that only three are among the ten highest recipients of x_τ while only one, I&S, is also among the highest ten for $x_{\tau i}/e_i$. Again, x_τ do not appear to go to the major exporting industries, a point to which we return below.

6.4. Applications and Extensions

Three issues are covered in this section. First, we consider if TBA is trade creating by examining its importance as a share of industry exports, extending the above discussion. Second, we rank the industries according to their multipliers, to asssess if the aid benefits go to industries of most benefit to the economy. Third, we consider a relatively quick way to apply our method to evaluate the impact of an aid project and provide a worked example.

Aided Exports and Industry Exports

Although x_τ and q_τ are generally a low share of industry totals they are often a significant share for individual industries. A proper investigation of whether aid is trade creating would require combined time series and cross-section data, by commodity or industry, on the pattern of UK trade with individual LDCs so that one could test if lagged aid was an influence on exports. Such an undertaking is beyond our scope and we confine ourselves to some general inferences on probable substitution and radiation effects. We do have IO data on the trend of industry exports between 1979 and 1984, and can avail of some other studies.

Excluding Construction, $x_{\tau i}/e_i$ exceeded one per cent in seven industries - notably OVch at 6.4 per cent and PMch (which receives the largest share of x_τ) at 4.1 per cent. If we rank all industries in descending order of their $x_{\tau i}/e_i$ shares, only two of the top ten export more than a third of their output (ElEq which ranks 7th and MCMch which ranks 8th). We can conduct the same exercise in yet another way, this time ranking the top ten exporting (e_i/q_i) industries and examining the

importance of x_τ to them (six of these ten industries are among the ten major exporters in terms of their share of total exports). As argued above, there is a tendency for x_τ to be of greater importance to industries whose export share of output is relatively low. It could be inferred that x_τ are effectively export subsidies to internationally uncompetitive industries.

We are not convinced by such an inference. A view more favourable to British exporters is that x_τ can go to industries which are internationally competitive because all donors are helping their industries. The subsidy is a prerequisite to competing in LDC markets. There is evidence that all donors assist their international construction industries (Strassmann and Wells, 1988) and that tied aid helps donor industries to increase their export market share (Morrissey, 1989d). The major deficiency with the data in Table 6.2 is that we are unable to isolate the importance of exports to LDCs. However, we can note that of the ten industries with the highest $x_{\tau i}/e_i$, exports declined as a share of industry output for five and as a share of total exports for eight over 1979-84. Only one of the ten largest recipients of x_τ, Const, increased exports as a share of its output *and* of total exports. On the other hand, exports were of declining importance, both for the industry *and* as a share of the economy total, for five of the ten largest x_τ recipients (PMch, IPlt and all three Vehicles industries). This is consistent with a declining UK aid budget in markets subject to intense donor competition. It is also consistent with declining performance by these industries. The two possibilities cannot be resolved with our data and both may hold.

Some 40 per cent of Britain's non-EC exports are to LDCs, and about 70 per cent of these are from the chemicals and capital goods industries (in a general pattern not dissimilar to that for x_τ). Britain's main competitors in LDCs are West Germany (capital goods, I&S, Chemicals) and Italy (metal products, IPlt and Railway stock) with, to a lesser extent, Japan (Ships and ElEng) and the US (aircraft, OfEq and foodstuffs); while France exports similar goods to the UK, it tends to concentrate on different countries (all data from May, Schumacher and Malek, 1989:168-172). In the context of the relationship between aid and trade, three issues arise: the degree of donor tying, the industry distrubtion of aided exports and the total volume

of aid, all relative to the practices of other major donors. These issues are considered in more detail in Chapter 9.

We can note here that other major donors increased their aid disbursements by more than the UK during the 1980s (Table 4.7). Britain's share of LDC markets has fallen, relative to other major donors, fairly steadily since the 1960's and the ratio of UK TBA to its LDC exports has been lower than the average for major donors during that period, and has fallen considerably (May, Schumacher and Malek, 1989). One interpretation is that the UK is now getting relatively more exports per £1 of aid, but this ignores possible detrimental long-run effects. There is clear evidence that competitors receive more aid support, at least in volume terms, from their governments, and this may help them to increase their market share. Italy introduced mixed credits in 1977, expanding them in 1981, and its share of international construction rose from 6 per cent in 1980 to 10 per cent since 1985, bringing it to third place in the world market (Norsa, 1988).

May, Schumacher and Malek (1989, Chapter 10) present a fairly detailed, if not entirely convincing, attempt to analyse the statistical relationship between UK aid and market shares of exports to LDCs. They found that, unlike France and Japan, UK aid (as a share of the total) was not a significant determinant of UK export share; however, historical ties and direct investment were significant and correlated with aid, subjecting the results to problems of inference, while the econometric work did not account adequately for lags. On a more general level, the correlation between UK shares of exports and aid over 1969-82 and 1978-82 were similar to Italy and Japan (all between 0.44 and 0.56), lower than France (at 0.75) but much higher than either Germany or the US (both almost zero in the second period). Generally, over recent decades, Britain's share of LDC exports has fallen at a slower rate than its share of aid; consistent with a resilience of historical trading links and a slow process, perhaps aid assisted, of building up new trading links. We may understate the true contribution of aid to exports since x_τ increase the chances of the UK firm winning further orders in the particular, or a neighbouring, market (as argued in Section 6.1).

Industry Multipliers

We merely observe here, keeping further consideration until Chapter 9, that the IO industry multipliers discussed in Section 5.3 can be used to evaluate if the x_τ-industries have relatively high linkages. Consider the multipliers listed in Table A.9, and let the values for MiscM be taken as economy averages. On this basis, for 1984, the x_τ-industries perform well: of the ten receiving the highest x_τ, 7 had above average output multipliers, 8 had below average import multipliers, 8 had above average tax multipliers, 7 had above average profits multipliers and 7 had above average labour income multipliers. Overall, they had relatively high linkages. The three Vehicles industries performed generally well but tended to have relatively low profits, while Mot has a high imported inputs multiplier. Interestingly, OfEq, a major exporter, had relatively poor multipliers as did IW&C, TlEq and ECA, except these three displayed relatively high profit multipliers. Overall, in terms of linkages, the industries receiving aided exports are above average.

Measuring Impact Using IO Multipliers

We have argued that the IO method is appropriate for estimating the impact of aided exports and takes into account the industry distribution of these exports. As pointed out in Section 5.3, the application of the IO method allows one to calculate industry multipliers for output and primary inputs. These IO multipliers are of two general uses. First, they permit comparison between industries (as above). Second, they provide a ready means to make a quick estimate of the impact of a particular aid project, or to contrast the impacts of competing projects. We present an application of this form here and, in doing so, demonstrate that the multipliers provide an improvement on methods previously used without increasing the complexity of the calculation. We use a project for which data are available and impact estimates have been made - HSPE, 1986); while the project was in fact supported by ATP, this has no bearing on our application except that the export ratio is higher than would be the case for tied bilateral aid.

In 1985 HSPE won a contract for the turnkey provision of 23 diesel generators to Indonesia worth a total of £36.2m in orders for UK goods (exports), £24.8m to HSPE itself. The Indonesian government had stipulated that contract bids be

supported by concessional finance thus, while HSPE claimed to have made the lowest bid net of ATP, an aid element of £11.8m was required "...to counteract the effects of competitor's government aid packages on their prices." (HSPE, 1986:8). The industry breakdown of aided exports, the values of the industry IO multipliers and the employment coefficient used by HSPE, which was actually the labour input coefficient (ϕ_{hi})[6], and our impact estimates, identifying output, labour income, employment, imported inputs and taxes are are in Table 6.3.

The range of industry IO multipliers are a by-product of the IO impact analysis that encapsulate both the direct and indirect effects on output of a change in demand for the produce of one industry (but not the effect of inter-relationships if demand increases for more than one industry at a time) so that impact estimates can be derived, and decopmosed into primary inputs, as shown in Table 6.3. The procedure in HSPE (1986:11-18), by comparison, utilised the ϕ_{hi} (inaccurately) to estimate direct labour effects as being 909 man-years. To do this, they divided the estimated value of labour inputs by average industry wage. To estimate indirect effects, they traced the four industries with orders exceeding £1m back to the impact on their suppliers, using the technical coefficients matrix, and estimated that the first round indirect effect generated employment amounting to a third of the direct effect. Assuming this relationship held for all industries over seven rounds, indirect employment effects were estimated at 445 person-years, implying a total impact on employment of 1354 person-years. This estimate was boosted by adding a Keynesian multiplier arguing that the income from these 1345 new jobs would generate increased demand capable of generating 958 jobs so that the aided exports of £24.8m were associated with a total of 2355 person-years of employment, some 95 person-years per £1m of exports.

Our quick approach underestimates impact to some extent: the impact measured by multipliers is less than that by **L** (since no account is made of the cumulative inter-action of demand increases in a number of industries). Also, no allowance is made

6 The authors of the report incorrectly assert that their employment coefficients are "...the percentage input of employment needed to create the total UK output for each [industry] ... which accounts for taxes, subsidies and foreign imports." (HSPE, 1986:10) In truth, they measure only labour income as a share of total inputs.

Table 6.3: A Multiplier Analysis of the Impact of the HSPE Indonesian Project

INDUSTRY			MULTIPLIER				x	q	m	t	h	wage	w
SIC	IO	ϕ_h	Labour	Output	Imports	Taxes	£m	£'000	£'000	£'000	£'000	£'000	
247		0.38	0.626	1.680	0.161	0.039	0.14	235.2	22.5	5.5	87.5	8.965	9.77
255		0.26	0.370	1.919	0.308	0.035	0.02	38.4	6.2	0.7	7.4	9.313	0.79
316		0.24	0.501	2.141	0.213	0.028	0.13	278.3	27.7	3.6	65.1	8.533	7.63
320	(7)	0.33	0.604	1.826	0.178	0.030	1.54	2867.5	274.1	46.2	930.2	8.960	103.82
324	(10)	0.36	0.574	1.633	0.187	0.032	0.15	245.0	28.1	4.8	86.1	8.960	9.61
325	(11)	0.27	0.551	2.016	0.201	0.030	0.11	221.8	22.1	3.3	60.6	8.960	6.76
328	(12)	0.34	0.607	1.815	0.172	0.032	16.59	30111.0	2853.5	530.9	10070.1	8.960	1123.90
341	(14)	0.26	0.348	1.484	0.463	0.022	0.06	89.0	27.8	1.3	20.9	9.480	2.20
342	(15)	0.37	0.657	1.742	0.234	0.031	3.60	6271.2	842.4	111.6	2365.2	9.480	249.49
343		0.35	0.593	1.677	0.227	0.035	0.05	83.9	11.4	1.8	29.7	9.480	3.13
3442	(16)	0.40	0.603	1.595	0.197	0.030	0.08	127.6	15.8	2.4	48.2	9.480	5.08
344/5	(17)	0.37	0.565	1.586	0.264	0.026	0.02	31.7	5.3	0.5	11.3	9.480	1.19
371	(21)	0.33	0.620	1.709	0.214	0.033	0.12	205.1	25.7	4.0	74.4	8.533	8.72
614		0.38	0.632	1.554	0.028	0.077	0.50	777.0	14.0	38.5	316.0	8.590	36.79
740		0.15	0.202	1.330	0.709	0.014	1.69	2247.7	1198.2	23.7	341.4	8.298	41.14
TOTAL							24.80	43830.0	5375.0	808.0	14514.0		1610.00

NOTES to Table 6.3: We list the 15 industries at the SIC level identified by HSPE (1986:10-11) and match these to the 1979 IO industries; numbers in parenthesis refer to the number of the industry in Table 5.1. Those excluded from that Table are: other glass products (247); paints and varnishes (255); packaging products of metal (316); electrical equipment for industry (343); wholesale distribution (614) and sea transport (740). **Multipliers** are as explained in Chapter 5; to maintain comparison with HSPE (1986), these are calculated from the *complete* 1979 IO Table and therefore differ from those reported in Appendix A which are derived from the 1984 aggregated IO Table.

ϕ_{hi} labour input coefficient for industry i

x value of exports by industry as given in HSPE (1986:11)

q total output, by industry, required to meet x_i.

m imports required to produce q_i.

t taxes on imports and intermediate inputs to produce q_i.

h household (labour) inputs required for q_i.

w industry employment = h_i/wage (industry average). The wage figure for SIC 740 of £8298 is the average wage for the whole economy in 1985.

for possible Keynesian multiplier effects, but capacity constraints and leakages may offset these anyway; and we can only include fully the £24.8m going to HSPE out of the total of £36.2m orders in the UK. We estimate total output required to be £43.8m implying an aggregate output multiplier of 1.8, entirely consistent with our earlier results. This output will require labour inputs worth some £14.5m which, using average industry wage levels, implies employment of some 1610 person-years. This approach estimates that 65 employees at the average wage can be supported by each £1m of exports, a somewhat higher ratio than implied by our analysis of tied bilateral aid.

The use of average wages rather than output-employment ratios results in a higher estimate of employment effects, which is perhaps unsurprising since the former is less likely to incorporate productivity or overtime payments. Since much of the employment associated with aided exports is either absorbing spare capacity or being met out of overtime or increased productivity, the latter approach is preferable. We use the wage approach here for comparability, noting that our estimated 1610 person-years exceeds the direct plus indirect HSPE estimate of

2355, since the labour multipliers exceed the ϕ_{hi}, but is well below the Keynesian-boosted estimate. Our approach, however, is less *ad hoc* and provides, in addition, ready estimates of imported input requirements (£5.4m, implying net exports of £19.4m). Taxes on intermediate inputs amount to some £0.8m and, if we assume an average tax rate of 25 per cent on labour income, income taxes would have been about £3.6m implying a minimum tax revenue of some £4.4m, a return to the Exchequer of 37.6 per cent. This tax return was well above that for TBA in general because, being an ATP project, the export ratio was high.

Finally, we can avail of Table 6.3 to indicate the industries with greater linkage effects which, in this case, are SIC 316 (packaging metal products), 325 (MCMch) and 255 (paints and varnishes), all with output multipliers near or above two. However, all have relatively low labour input multipliers and relatively high imported input multipliers so that a substantial part of the impact leaks out of the economy. The weakest linkages are in SIC 740 (sea transport) and 341 (IW&C): output, labour and tax multipliers are low while the imports multipliers are relatively high. The two most important industries, SIC 328 (OMch) which received two-thirds of export orders and SIC 342 (ElEq) which received 15 per cent, had relatively high output and labour multipliers and relatively low imports multipliers. Hence, in terms of benefiting the UK economy, this project would be rated highly insofar as it benefits industries with relatively high linkages.

6.4. The Commercial Value of Tied Bilateral Aid

Taking simple averages for 1980-85, each £1m of TBA supported output worth £1.17m and 44 employees, and provided a return to the Exchequer worth 14.5 per cent of its expenditure outlay. Six industrial groupings accounted for the greater part of the direct, and indirect, benefits of TBA. Contractors, incorporating four of the groups (MecEng, ElEng, Const and I&S), accounted for 56 per cent of x_τ, 48.5 per cent of q_τ and 44 per cent of w_τ on average over 1980-85. Within these groups there was further concentration at the industry level, with eight industries each receiving over 5 per cent of x_τ and accounting for 70 per cent of the total.

There was a tendency for x_τ to be greater, in volume terms and as a share of industry output, in industries whose export performance (measured by export's share of industry output and industry share of total exports) deteriorated over 1979-84. This does not reveal a clear interpretation but probably reflects both a decline in international competitiveness and an increase in the use of aid to support trade by other donors. Those industries with little reliance on x_τ could either be internationally competitive and/or operate in markets where aid is not important. Aid is of most importance to industries in construction-related business and x_τ tends to be concentrated on such industries; as such, it may simply indicate the prevalence of tied aid in certain industries. Since the volume of UK TBA has fallen considerably relative to other donors, it could be anticipated that the performance of these firms in LDC markets would also be in decline. The evidence supports, but does not confirm, this argument.

There are a number of senses in which our approach underestimates the benefits from bilateral aid, most notably because we restricted attention to TBA. The granting of untied bilateral aid will confer some benefits, if only through creating or reinforcing goodwill and supporting existing trade ties; if a country is a strong trading partner it may be unnecessary to formally tie aid (as has been claimed in respect of France in Francophone Africa and Japan in South-East Asia). Furthermore, a large portion of untied aid is in the form of TCA or training programmes which do benefit the UK both directly, via the employment of UK personnel or financial support for overseas students living, and therefore spending, in the UK, and indirectly by training people in British practices who will tend to be influentially placed in their own country. In other words, untied aid can be very important in creating the goodwill and local contacts so important for winning export orders. Finally, we made no attempt to measure any long-run benefits.

There are also, however, a number of senses in which we have overstated the economic benefits to the UK, notably because we made no attempt to account for displacement effects. These were considered in Chapter 3 where we argued that the available evidence suggested that they are unlikely to be very large, if only because they presuppose capacity constraints which do not appear to have been great in the relevant industries (see Table 3.1). Furthermore, given the general decline in LDC

markets in the 1980s and increased competition, it is unlikely that aid substituted for commercial exports to any great extent. It seems reasonable to conclude that exports supported by TBA in the 1980s were an important factor in the performance of a number of industries in LDC markets and probably secured orders that would not otherwise have been won.

Such a conclusion does not, of itself, provide a justification for tying. In the short-run, TBA may play a role in protecting domestic exporter's market share against competitors supported by aid from their own government. On the other hand, tying is a subsidy which imposes welfare costs on the donor economy and on recipients. From the donor's perspective, it would be necessary to show that the net economic gains from tying exceed the welfare costs *and* that tying is the best means of capturing such gains. We will discuss these issues again in Chapters 8 and 9. It can be noted that tying is not, in the long-run, optimal for aid recipients while the granting of untied aid can generate a goodwill which will assist internationally competitive donor industries in maintaining their market share. There are commercial benefits from TBA, but these do not justify tying and do not imply that there is a net economic benefit, to the donor or in terms of global welfare.

CHAPTER 7. THE IMPACT OF MULTILATERAL AID

The argument that bilateral aid, especially if tied, confers direct benefits on the donor through support for exports is easy to accept. To posit that the same can be applied to multilateral aid requires one to demonstrate that contributions to MAAs directly generate exports for the donor. It suffices to demonstrate that even if MAAs award contracts subject to strict international competition, the anticipation is warranted as each donor could expect to win exports in proportion to its share of the relevant LDC markets. Since each MAA tends to have a geographical focus, donors can contribute more to those MAAs which support projects in LDCs where the donor has a relatively large share of the market. Thus, for example, the US would be expected to be a major contributor to the Inter-American Development Bank (IDB) while Japan would be a major contributor to the Asian Development Bank (ADB). There are other ways in which a contributor can attempt to maximise its 'return' by way of export orders, as we will consider. Even if the relationship between contributions and exports is weak, it is generally the case that contributing to an MAA is a prerequisite for eligibility to tender for contracts, and the global volume of MAA contracts is large. Thus, it is valid to incorporate multilateral aid into an analysis of the impact of a donor's aid on its economy.

Section 7.1 begins by outlining briefly the general arguments for multilateral rather than bilateral aid depicting, in the process, the increasing importance of MAAs in the global allocation of aid. The remainder of the section is devoted to the principle of *juste retour* whereby donors come to expect that their contributions will result in proportional exports. Some commentators have argued that the impact of TBA is greater than that of multilateral aid and that the aid budget should be increased with a shift in allocation favouring TBA (eg. McGregor, 1985; see Chapter 4). This argument is evaluated by measuring the impact of multilateral aid in Sections 7.2 and 7.3, which follow the pattern of Sections 6.2 and 6.3 respectively, and comparing it with TBA in Sections 7.2 and 7.4, with the latter addressing the aid and trade relationship. Since the presentation of results here follows closely that of Chapter 6, less need be said by way of introduction. Concluding comments are offered in Section 7.5.

7.1. An Overview of Multilateral Aid

Over the period 1974-76 annual aid flows to LDCs were slightly over $13bn; 70 per cent came from bilateral donors, two-thirds of which was in the form of grants, and the remainder from MAAs, less than half of which was in grant form. In 1982 bilateral assistance accounted for two-thirds of the $28bn of aid, and similar proportions were in the form of grants. Bilateral assistance, and grants, grew in importance during the debt crisis and, by 1985, almost 75 per cent of the $29bn in aid was bilateral, over 80 per cent of which was grants and the share of grant-aid in multilateral aid had risen to just over 50 per cent (Todaro, 1989:482). Thus, by the 1970s and throughout the early 1980s, almost a third of global aid was disbursed by MAAs, most of which only came into existence in the 1960s. It is worth briefly reviewing this evolution.

The Growth of Multilateral Aid

International cooperation in the economic sphere has a progeny dating back at least to the Bretton Woods agreement of 1945 which established the IMF, to ease repayments, and the International Bank for Reconstruction and Development (IBRD), which had the initial objective of supervising the Marshall Plan for rebuilding Europe. The idea of soft-loan facilities to help the poorest countries came with the establishment of the International Development Association (IDA, which with the IBRD comprises the World Bank) in 1960. The IDB was established in 1959, the ADB and African Development Bank (AfDB) followed in the mid-1960s but it was the late-60s before the regional development banks established soft-loan affiliates, which required funding from developed, and often non-regional, countries. In 1965 the Special Fund and Technical Assistance branches of the UN were combined to establish the UN Development Programme (UNDP). The EC established a development programme by the late-60s, formalised with the signing of the first Lome Convention in 1975 which introduced the notion of contractual relations between donors and recipients. The European Development Fund (EDF), being restricted to EC members, is perhaps a form of collective bilateralism, but it is becoming a major source of development finance. Finally, the DAC, established in 1960, provides a forum for individual donors to discuss and co-ordinate their development policies.

The evolution of MAAs reflected increased awareness of the deficiencies of bilateral aid combined with the view that global development required collective action. Dissatisfaction with bilateral aid became widespread in the 1960s as it was seen as politically motivated, being used often to demonstrate generosity rather than promote growth, and as perpetuating dependency instead of fuelling development (Balogh, 1967). It was argued that aid would have maximum effect if allocated, in adequate quantities, to coordinated programmes integrated on an international scale using multilateral consortia (Rosenstein-Rodan, 1968). Multilateral aid was not viewed as a panacea: large MAAs face many problems in democratic control, organisation, training and recruitment of non-partisan staff; they are frequently uncoordinated and fail to realise "that the problems of development are organically related." (Balogh, 1967:211). To make aid more effective, it is the cooperation of donors that is required:

> The best solution would be reached on the basis of an international agreement on sharing the burden of aid and on multilaterally supervised criteria on how to distribute that aid.
>
> (Rosenstein-Rodan, 1968:227)

The evolution of MAAs represented a move towards this, especially the DAC which monitors cooperation between donors and sets targets for the level of aid, the overall grant element and the grant component of mixed credits. Multilateral agencies are better suited to large-scale, long-term, progammes as they are believed to be more directly concerned with development objectives than bilateral donors. World Bank aid, for example, tends to be related more to economic need, performance and creditworthiness than to political allegiance or commercial interests (Bennett and Guzman, 1976; Maizels and Nissanke, 1984), although counter-examples could be found (notably Vietnam and China). There are five basic arguments for multilateral, as against bilateral, aid (DAC, 1985:148): it is less subject to political and commercial pressures; it is more likely to reflect accepted geographical and sectoral development priorities; agencies are better able to engage in dialogue with the recipients than are bilateral donors; MAAs are a means of co-operation and co-ordination and can act as central repositories of the experience of development programmes. In the words of a DAC chairman:

> Multilateral programmes collectively are better than the combined bilateral programmes in channelling resources to agricultural development. A large fraction of their flows goes to the low-income developing countries and they carry most of the burden of engaging recipient governments in dialogues concerning needed changes in the latter's policies.
>
> (Lewis, 1981:7)

Multilateral aid, however, has not always been a success and has often failed to realise the hopes outlined above. The most obvious problems are in organisation and administration, and MAAs tend to disburse aid more slowly than can bilateral donors. A more deep-rooted problem, however, is that of collective action: donors have interests which they want to further, and would be very reluctant to support MAAs acting against these interests, and tend to be strongly influenced by each others positions. The DAC countries are the source of up to 90 per cent of the resources channelled through multilateral programmes, and retain considerable control over the operation of agencies (the UN being perhaps the only exception). Consequently, the major donors tend to set the pattern for multilateral aid, and development ideology tends to follow the dominant (Western) economic paradigm (see Toye, 1987). Thus, the 1960s was a time for large-scale infrastructure projects and Keynesian inspired modes of development, while the 1980s saw a focus on monetarist stabilisation and neo-classical structural adjustment. The MAAs, especially the World Bank, are repositories of development experience and do engage in policy dialogue, but with the economic interpretation and voice of the major donors (the UNDP being a possible exception).

The funding of MAAs also reflected the lead of major donors. In 1965-66, 13 per cent of DAC aid was to multilateral institutions (14 per cent if EC included), rising to 24 (29) per cent in 1974-5 and 27 (32) per cent in 1983-84. The US has been the leader over this period, increasing the share of multilateral contributions in its aid from 14 to 28 per cent, although its share of total DAC contributions to MAAs has fallen from 64 to 33 per cent. Japan is now a major contributor, accounting for 18 per cent of the DAC total (the only country other than the US whose share exceeds one-tenth). The strongest advocacy of multilateral aid has come from the Nordic countries and Switzerland: in 1965-6 they gave over half of their aid to MAAs and, although the share had fallen to about a third in the 1980s, remained committed to

aid for development. The EC countries have tended to increase the share of their aid going to MAAs other than the EDF, to between a fifth and a third for all but France, so that including EC contributions, all but France allocate between a third and a half of their aid to MAAs (all data from DAC, 1985:147; less than one fifth of French aid in 1983-4 was to multilateral agencies). The influence on a donor of the position of other donors has not necessarily benefited MAAs since a commitment to burden sharing may deter a donor from giving more multilateral aid if other donors won't do so. Furthermore, the whole process reinforces donor interest:

> The extraordinary growth of multilateral aid in the mid-1970s, at an annual rate of 27 per cent, took place through the medium of agencies which the donors already knew well, and in circumstances in which donors had the dominant voice. (DAC, 1985:146)

The question of whether multilateral aid programmes are in fact better, from the development viewpoint, than bilateral aid is an issue in aid evaluation and effectiveness beyond the scope of this study. The point we wish to make here is that MAAs have grown in importance since the 1960s but hold a development ideology and a set of interests very close to those of the major donors. Hence, the policies advocated by MAAs are likely to promote the form of economic growth which will support increased North-South trade. In particular, many of the projects financed by the World Bank or regional development banks require capital goods from DAC countries, ie. the projects require donor exports. The extent of donor benefits will vary between MAAs, as we now consider.

The Principle of *Juste Retour*

While very little multilateral aid is formally tied and it is considered improper for donors to insist that their contribution be linked to the orders they receive, donors do collect, with a vested interest, information on the procurement of MAAs and may refer to *juste retour*: "This means that the procurement in the contributing countries should be more or less proportional to their contributions (after corrections for local costs). Although substantial deviations have no impact on the size of future contributions, they may lead the donor government to put pressure on the local firms and on the multilateral institutions to try and redress the situation."

(Jepma, 1989:33). The ratio of contributions to procurement will vary between MAAs according to the relative scale of local procurement and whether non-local procurement is restricted to contributors.

We concentrate on the World Bank as being far and away the largest multilateral institution, accounting for about 70 per cent of cumulative MAA procurement up to 1985 (May, Schumacher and Malek, 1989:51). The IBRD is a lending institution which funds its operations largely from borrowing on international capital markets; members subscriptions provide its capital base. The IDA offers concessionary loans to the poorest LDCs, financed largely by triennial replenishments from the richer members in addition to repayments of past loans. The World Bank finances a third of a project's cost on average, so that potential procurement is some three times the value of IBRD loans and IDA credits. However, the Bank has a strong commitment to local and LDC procurement so that no more than half of the total value of projects would be available to DAC suppliers, a figure which should exceed the value of their contributions.

It is difficult to compare donors contributions to the Bank with their procurement on an annual basis; while the procurement data is published annually by the World Bank, contributions tend to be lumped rather than regular. Since it is the IDA which is most directly financed by contributions, we can use data for the late 1980s to indicate the extent of *juste retour* (see Table 7.1). Perhaps the most important consideration is that the burden of IDA replenishments is shared, by negotiation, according to economic strength. For example, the US contributed 42.3 per cent of IDA-1 (1961-64), the UK 17.3 per cent, France and Germany 7 per cent and Japan 4.4 per cent. Changing economic power are reflected in the shares of IDA-9 (1991-93) with the US at 21.6 per cent, Japan 18.7 per cent, Germany 11 per cent, France 7.3 per cent and the UK 6.7 per cent (Stern, 1990:23). The pattern for IDA-8 is almost identical (Table 7.1). The relationship between contributions and procurement would appear to be tenuous. Taking the first two years of IDA-8, only Germany has a share of procurement near its share of contributions, while the UK and, to a lesser extent, France have relatively high procurement.

Table 7.1. IDA Procurement, Major Donors, 1980s

	IDA-8		IDA 1988		IDA 1989	
	$m	%	$m	%	$m	%
US	2875.0	25.0	181.0	7.3	212.0	8.5
Japan	2150.5	18.7	272.5	11.0	272.0	10.9
Germany	1322.5	11.5	232.5	9.4	237.0	9.5
France	839.5	7.3	267.6	10.8	275.0	11.0
UK	770.5	6.7	357.6	14.4	389.0	15.6
Italy	609.5	5.3	81.9	3.3	71.0	2.9

	IDA 1981-85		IBRD & IDA 1989		(Consultants)
	$m	%	$m	%	%
US	778.0	12.8	1408.0	15.2	(9.4)
Japan	834.0	13.7	1321.0	14.3	(1.3)
Germany	502.1	8.2	858.0	9.3	(5.7)
France	560.9	9.2	636.0	6.9	(15.3)
UK	862.1	14.1	935.0	10.1	(12.3)
Italy	373.0	6.1	384.0	4.1	(3.6)

NOTES and SOURCES: Figures give value and percent of total. IDA-8 refers to contributions to the 8th Replenishment, excluding any supplementary contributions (*World Bank*, 1987:29); other figures are procurement under IDA in fiscal 1988 (*World Bank*, 1988:58), IDA in fiscal 1989 and IBRD&IDA in fiscal 1989, including consultancy as a percentage of country total (*World Bank*, 1989b:74-5) and cumulative procurement under IDA for 1981-85 (*World Bank*, 1985:29).

Considering the figures over the 1980s, the UK gets almost 15 per cent of procurement and France 10 per cent while the other donors, especially the US, get procurement shares much lower than their contribution shares. Over the first two years of IDA-8 the UK won procurement almost equal in value to its contribution, and France is the only other country that looks like achieving this over the full three years of IDA-8 (if the trend holds for 1990). If one interprets IDA replenishments

as a cost of 'buying-in' to IBRD procurement then all donors could expect procurement to at least equal contributions on average over a period of years. It seems clear that the UK is relatively successful in procurement, in which context we can note that 12 per cent of the IBRD and IDA procurement was for consultants (only France had a higher percentage). However, there is little support for the general principle of *juste retour* in shares, though it may still hold in value.

The EDF is the next most important MAA for the UK and while it has traditionally received a low share of procurement relative to France and Germany this has changed in recent years, especially in respect of consultancy work. Thus, by the end of 1987 the UK had won 10.5 per cent of procurement (15.6 per cent of consultancy and technical assistance) under EDF-IV (1976-80), 14.6 (24.5) per cent of EDF-V (1981-85) and 30.7 (20.6) per cent of EDF-VI (1986-90). France's share of procurement had fallen from 22 per cent of EDF-IV to 15.3 per cent of EDF-VI, while Germany's share remained fairly stable around 12 per cent (data supplied by European Commission). Since 20 to 30 per cent of EDF goes on local procurement, the value of procurements is generally less than of contributions and, in fact, if *juste retour* in shares held this would be similar to tied bilateral aid. Since Britain's contribution has been about 18 per cent of the total, procurement has been worth less than the outlay. Furthermore, the share of consultancy and technical assistance in total procurement has risen from about 20 per cent over 1976-85 to 50 per cent in EDF-VI, and these have a lower impact than procurement of goods and civil works. The impact of EDF is thus similar to bilateral aid.

The regional development banks, like the IBRD, are lending institutions whose procurement can exceed contributions quite significantly, so that the US is likely to do well from the IDB while Japan benefits from the ADB. While the UK does not get much procurement, in share or value terms, from the regional banks, it is a minor contributer so that procurement tends to exceed the value of contributions by a large margin (May, Schumacher and Malek, 1989:55). Similarly for the UNDP: although the UN has increasingly moved toward LDC procurement during the 1980s, Britain had won some 13 per cent of cumulative procurement to 1985 with a value almost double that of capital subscriptions (May, Schumacher and Malek,

1989:52). The point of this section is clear: Britain has tended to win procurement from MAAs equal if not greater in value than its contributions, even if the evidence for *juste retour* is lacking.

There is generally a high correlation between major donor's share of LDC export markets and their share of procurement from MAAs for which all are eligible (ie. excluding the EDF) with a correlation coefficient of 0.82, or 0.89 if UNDP is excluded. Britain and Italy tend to fare better than suggested by their export shares while the US fares worse (May, Schumacher and Malek, 1989:60-1). This can be taken as support for those who claim that procurement is determined by international competition, although it would have been useful had the estimation included the donors shares of contributions to the agencies. It seems likely that the UK derives considerable benefit from historic ties, especially trade links with Commonwealth countries, and the international competitiveness of its consultants.

7.2. The Impact of Multilateral Aid

The total value of UK contributions to MAAs was £2459m over 1978-84 and the corresponding exports were worth some £2526m; the UK derived considerable benfit from MAAs as evidenced by our estimate of the export-ratio for multilateral aid, ρ_μ, as 1.03. This ratio was greater than unity for most MAAs except the EDF (for which it was about 0.8). Since the procedure for estimating the impact is the same as for TBA, it is expedient to present the results for multilateral aid and compare them with TBA at the same time. The aggregate measures of impact for both types of aid are given in Table 7.2. While multilateral aid more than doubled over the period, TBA fell by 30 per cent, so that x_μ assumed much greater importance in volume terms. This is a product of the years chosen and, while important, we prefer to focus on the aggregate multipliers as measures of relative impact.[1] It is clear from the Table, however, that the relative impact of multilateral aid is greater than that of TBA.

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[1] Because of the multiplier effects within L, these aggregate multipliers need not be entirely independent of volume but will be generally so. Note also that figures have been successively rounded at various stages of the analysis which may generate apparent slight anomalies.

Table 7.2. The Impact of UK Multilateral and Tied Bilateral Aid

INDICATOR	MULTILATERAL		TIED BILATERAL	
	1980	**1985**	**1980**	**1985**
a_{t-1}	£252m	£531m	£339m	£237m
x_{at}	£259m	£545m	£224m	£157m
ρ_a	1.03		0.66	
q_{at}	£476m	£962m	£408m	£271m
Q_{xat}	1.84	1.77	1.82	1.73
Q_{at}	1.89	1.81	1.20	1.14
w_{at}	20803	31247	17577	8609
W_{xat}	80.3	57.3	78.5	54.8
W_{at}	82.6	58.8	51.8	36.3
t_{at}/a_{t-1}	22%	24%	14%	16%

NOTES: The indicators, for time subscript t, are: a_{t-1}, lagged expenditure out of the aid budget; x_{at}, aided exports; ρ_a, the export ratio; q_{at}, total output required to meet x_{at}; $Q_{xat} = q_{at}/x_{at}$, output per unit export; $Q_{at} = q_{at}/a_{a-1}$, output per unit aid; w_{at}, person-years employment supported by q_{at}; $W_{xat} = w_{at}/x_{at}$, employment per £1m aided exports; $W_{at} = w_{at}/a_{t-1}$, employment per £1m aid; t_{at}/a_{t-1}, tax revenue from q_{at} expressed as a percentage of a_{t-1}.

SOURCE: Own estimates derived from IO impact analysis, see Appendix A.

Given the assumptions of a constant ρ_μ and exports lagged one year on aid, the estimated x_μ rose from £259m to £545m and the benefits to the economy increased, but not *pro rata* since industry linkages declined slightly and labour productivity rose considerably. Thus, while x_μ increased by 110 per cent, q_μ rose by 102 per cent from £476m to £962m. Since the export ratio was almost unity, it is unsurprising that the values for $Q_{x\mu}$ and Q_μ were almost identical; each £1m of multilateral aid generated about £1.9m of output in 1980 and £1.8m in 1985. The $Q_{x\mu}$ was slightly greater than for TBA, and declined at a slightly slower rate (four per cent as against five per cent), suggesting that the x_μ-industries had a relatively greater, and more stable, demand for intermediate inputs.

A similar trend holds for employment although this can be explained by the large share of Const in x_μ (Table 7.3). We estimate that x_μ supported 20,803 employees in 1980, 83 per £1m aid, and 31,247 in 1985, a fall to 59 employees per £1m of aid. In both years $W_{x\mu}$ was greater than for x_τ but this is unlikely to have been realised because it is due to the relative importance of Const (which in turn reflects Civil Engineering and consultancy orders which would not have generated much employment within the UK). Note also that the W_μ in 1985 suggests a cost, in terms of aid expenditure, of £16,950 per employee. This is about double the average wage and suggests that aid, especially tied aid if one considers the corresponding W_τ, is an expensive way to create employment.[2] As with TBA, the benefits are concentrated in a small number of industries, for which the employment may be important.

The value of imported inputs required by q_μ in 1980 was £49.5m, implying net exports of £209m, equivalent to 15 per cent of the visible trade balance in that year or 6.7 per cent of the current account surplus. Taxes on intermediate inputs amounted to £8.2m and, allowing for taxes on labour income and profits, total tax revenue was about £55m, equivalent to 21.8 per cent of multilateral aid (see Table A.6 for details of the decomposition into primary inputs). Imported inputs in 1985 were £95.6m and led to net exports of £450m, equivalent to 13.5 per cent of the current account surplus and of even greater significance given that visible trade was in deficit. The total tax revenue was about £129m, or 24.3 per cent of multilateral aid (see Table A.7 for details).

We can summarise by taking a simple average of 1980 and 1985: each £1m of multilateral aid supported exports worth about £1.03m and required total output of some £1.85m, which would have provided about 70 person-years of employment. The net exports were equivalent to over 80 per cent of the aid, implying that the transfer cost was less than one fifth of the outlay. Finally, almost a quarter of expenditure on multilateral aid returned to the Government in tax revenue.

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2 In this sense we tend to support Byatt (1984) in his criticism of export subsidies as a means of creating employment. There is much interest in the employment-creating possibilities of aid which we refer to in Chapter 9.

Table 7.3: The Impact of Multilateral Aid on Exports, Output and Employment, Industry Groups, 1980 and 1985

GROUP	1980			1985		
	x_μ £m	q_μ £m	w_μ	x_μ £m	q_μ £m	w_μ
MecEng	88.29	102.51	4499	185.97	228.56	5711
%	34.1	21.6	21.6	34.1	23.8	18.3
ElEng	34.06	42.33	2173	71.74	85.92	2663
%	13.2	8.9	10.4	13.2	8.9	8.5
Const	57.74	77.28	3744	121.62	157.35	4520
%	22.3	16.2	18.0	22.3	16.4	14.5
I&S	13.46	32.29	1116	28.36	62.63	838
%	5.2	6.8	5.4	5.2	6.5	2.7
Vehicles	17.35	20.70	1026	36.54	40.80	1015
%	6.7	4.4	4.9	6.7	4.2	3.2
Chemicals	3.81	4.83	120	8.02	9.14	123
%	1.5	1.0	0.6	1.5	1.0	0.4
SUB-TOTAL	214.71	279.94	12678	452.25	584.40	14870
%	82.9	58.9	60.9	82.9	60.8	47.6
ALL	258.91	475.62	20803	545.35	961.79	31247

NOTES: As for Table 6.1 except estimates refer to x_μ, aided exports due to multilateral aid, and associated output, q_μ and employment, w_μ.

The Impact on Industrial Groupings

The industry groups accounted for almost 83 per cent of x_μ, which is slightly higher than their share of x_τ, and their relatively greater linkages are reflected in the fact that their share of q_μ, at 60 per cent, and w_μ, falling from 61 to 48 per cent,

were lower than for TBA. Compared to x_τ, x_μ were more heavily concentrated in Const and, to a lesser extent, MecEng, and were far less concentrated in Vehicles and Chemicals and, to a lesser extent, I&S (compare Table 7.3 to Table 6.1).[3] The contractor industries, as we have defined them, absorbed 75 per cent of x_μ, a higher share than under x_τ, reflecting as much the nature of multilateral projects as the competitiveness of the UK industries. Nevertheless, British consulting engineers and contractors do keep in close touch with MAAs, especially the World Bank, and this clearly pays off.

The linkages of the industrial groups with the rest of the economy declined over the period, but this is almost completely attributable to MecEng which accounted for 21.6 per cent of q_μ in 1980 but 23.8 per cent in 1985; this is largely explained by an increase in the share of labour and of profits in inputs for the most important constituent industries (MCMch, OMch, AMch and TWMch; see Table A.9). The linkages of the other groups remained stable and, as for TBA, I&S benefited from demands from MecEng so that it had a higher share of output than of exports.

The share of employment accounted for by the groups fell dramatically over the period, from 61 per cent to 48 per cent, despite their increased share of total output. This arose because Const and MecEng absorbed an increasing share of output but experienced large increases in labour productivity, which were matched by the other major industries. Overall employment remained substantial because of demands for intermediate inputs from industries with a high employment potential. However, since Const is a very high component in the total and the employment estimates for this industry are questionable, the scepticism about taking the employment figures on face value expressed in respect of TBA have even greater force in the case of exports financed out of multilateral aid. The point remains that x_μ are an important source of trade and output for specific, usually contractor, industries, and we now consider this in more detail.

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3 As detailed in Appendix A (Table A.8), we have revised the industry shares of x_μ and re-estimated the impact in 1985 (the revised figures by industry are used in Section 7.3). The only noticeable differences are within ElEng, but the total for this Group changed little and was re-estimated as accounting for 12.6% of exports, 8.7% of output and 7.4% of employment in 1985.

7.3. Industry Benefits From Multilateral Aid

This section follows the approach of Section 6.3, although direct comparison with TBA is left to Section 7.4. Table 7.4 presents the revised estimate of the allocation of x_μ by industry (including only those industries for which the values of x_μ or $x_{\mu i}/e_i$ were among the ten highest, underlined, for the listed industries; full details are in Table A.8). The final four columns are the same as for Table 6.2 (and only values for the 'top-ten' industries in any category are included here). Only six of the ten industries which were the greatest beneficiaries from x_μ were also among the ten top beneficiaries from x_τ; Const, MCMch and I&S were the only industries among the top five for both types of aid.

In 1980, x_μ accounted for over one per cent of output in five industries, three in MecEng (Table A.6). By 1985, it accounted for over one per cent of output in seven industries, and over two per cent in two of these, four in MecEng and one in ElEng (Table A.8). The importance of x_μ is seen more clearly as a share of industry exports: in 1980, x_μ accounted for more than two per cent of exports for five industries, two in ElEng and the figure for Const is very high at 36 per cent (Table A.6). The respective figure by 1985 was ten industries, including four in MecEng above three per cent, IW&C at 8.5 per cent and Const at 38 per cent (Table 7.4). We can avail of Table 7.4 to consider the export position of these industries.

Six of the ten industries for which x_μ was highest feature among the ten industries with the highest export shares in output but only three of these also feature among the ten industries with the highest $x_{\mu i}/e_i$: MCMch, for which x_μ were 5.5 per cent of exports; AMch (3.5 per cent) and InstE (3.4 per cent). Looking at this another way, of the ten industries for which exports were the highest share, x_μ were a relatively high share of exports (ie. among the 'top-ten') for only four (TWMch is also included) but six were among the ten industries with the highest x_μ. This suggests that it is the export orientation of the industry which wins orders from MAAs, rather than the x_μ which bolster export performance. On the other hand, x_μ were a relatively high share of exports for four of the industries whose export performance declined (Frt, IPlt, PMch and OVch). This would be consistent with arguing that they were able to retain their share of MAA contracts in declining

world markets or while losing market share to competitors (who may have had more tied aid to avail of).

Table 7.4: Multilateral Aid and Exports, by Industry, 1985

INDUSTRY	x_μ £m	$x_{\mu i}/e_i$ %	e_i/q_i %	$\Delta(e_i/q_i)$	e_i/e %	$\Delta(e_i/e)$
1. MOP					4.2	0.5
2. I&S	28.26	1.78		2.0	1.8	-0.7
3. nMMP					1.1	-0.3
4. Frt	2.18	3.76		-7.5		
5. Phm					1.1	-0.2
6. Mtl						
7. IPlt	18.00	3.40		-9.9		
8. AMch	26.72	3.51	62.9	1.2		
9. TWMch	15.82	2.25	56.3	1.0		
10. PMch	20.18	4.53		-27.1		
11. MCMch	67.62	5.45	43.6	2.7		
12. OMch	34.36	1.67	34.9	2.5	2.3	-0.5
13. OfEq			90.0	20.7	2.6	0.9
14. IW&C	18.54	8.47		0.4		
15. ElEq			46.3	9.8		
16. TlEq	26.72	1.36	35.9	6.9	2.3	0.8
17. ECA			53.1	12.1	1.4	0.4
18. Mot	25.63	0.75	34.5	-0.5	3.9	-2.3
19. Ships						
20. OVch	7.64	4.31		-3.1		
21. InstE	37.08	3.35	52.2	5.0	1.3	
22. TPRP						
23. Const	121.61	37.89				
24. FSer					3.4	-1.5

NOTE: Variables as defined in Table 6.2, except first two columns refer to exports financed by MAAs to which the UK contributed, 'top-ten' underlined.

Generally, the industries with the highest values of x_μ displayed a positive export performance, seven excluding Const increased exports as a share of output, suggesting that they were internationally competitive. Of the eleven industries that each accounted for over one per cent of total exports, five appeared among the ten largest recipients of x_μ but only one of these, InstE, was also among the ten for which $x_{\mu i}/e_i$ was highest. Again, this suggests that industries with an export orientation tend to do well in terms of orders from MAAs. It is not *juste retour* which confers benefits to the UK, but the competitiveness of British industries in the markets in which MAAs are most frequently involved.

7.4. Comparing the Impact of Bilateral and Multilateral Aid

Perhaps the single most important point is that the value of multilateral aid increased throughout the period whereas that for TBA declined, and this general trend can be applied to the 1980s as a whole. Furthermore, the ρ_μ can generally be anticipated to exceed ρ_τ as long as British firms continue to be successful at winning World Bank orders. In fact, any reallocation of the aid budget from TBA to multilateral aid is likely to benefit the UK (unless the level of contracts won is truely invariant to the value of contributions)[4], even were there a reallocation of x_μ away from the World Bank and towards Europe. A clear conclusion from the evidence is that, unlike x_τ, x_μ were a significant and increasing share of exports and of output in a number of industries. A question of particular interest is whether there is any tendency for the x_μ-industries to be any more export oriented, or internationally competitive, than the x_τ–industries?

We can try to answer this question by refering to some correlation coefficients between shares of aided exports and export performance.[5] Since these are

4 It seems probable that contracts would not increase in proportion to contributions, and the export ratio may be maximised at the estimated level. This may appear to justify retaining the present share of TBA, but such a conclusion fails to allow for the greater competitiveness of those winning MAA orders. In any case, increased aid to the EDF appears probable but, as previously noted, this has the lowest export ratio. On the other hand, the Single European Market should reduce the scope for bilateral tying and increase competition.

5 The sample correlation coefficient between two sets of variables, X_i with mean x and Y_i with mean y, is given by the formula: $\{\Sigma_i(X_i-x)(Y_i-y)\}/(\sqrt{\Sigma_i X_i^2})(\sqrt{\Sigma_i Y_i^2})$.

indicative rather than conclusive, we simply refer to them in the text without compiling a table (see Chapter 9 for further analysis). The correlation between industries' share of x_μ and their share of x_τ is positive but quite low, at 0.285, confirming that there are appreciable differences in the industries deriving most exports from each type of aid. The correlation between industries share of x_μ and the value for $x_{\mu i}/e_i$ (0.577) is significantly higher than the corresponding correlation for x_τ (0.317). This tendency for x_μ to be a more important share of exports than x_τ can be explained by the tendency for x_μ to be worth more in money terms. Put simply, x_μ tend to be of more commercial value to the economy, and to particular industries.

There is a negative, but insignificant, correlation between e_i/q_i and both industry shares of x_μ (-0.058) and x_τ (-0.069). At the least, there is no tendency for shares of aided exports to be greater in the more export-oriented industries. However, there is a low negative correlation (-0.224) between industry shares of x_τ and export performance measured as $\Delta(e_i/q_i)$ whereas the corresponding correlation for x_μ is positive but insignificant (0.012). This supports the argument that TBA is more likely to benefit industries with a declining export performance. A similar conclusion is reached if we consider the importance of aided exports to an industry, as a share of exports. The correlation between $x_{\mu i}/e_i$ and export orientation, e_i/q_i, is negative but low (-0.157), as is that for $x_{\tau i}/e_i$ (-0.168). However, while the correlation between $x_{\mu i}/e_i$ and export performance is negative (-0.079) it is insignificant, whereas that between $x_{\tau i}/e_i$ and performance is of considerably greater magnitude (-0.361). It is perhaps unsurprising that aided exports tend, if anything, to be of greater importance for industries with a relatively low export orientation, especially given the tendency for x_μ to be of high value (multilateral projects are a large international market). It is more important that x_τ appear to be of greater importance for industries with a deteriorating export performance.

Some support for this argument can be found in May, Schumacher and Malek (1989:105-111) who demonstrate that industries in receipt of aided orders tended to grow, in gross output terms, more slowly than manufacturing as a whole over 1978-84, and that this was more pronounced for x_τ-industries. Likewise,

employment fell faster in x_τ-industries than in x_μ-industries, but faster in both sets of industries than in manufacturing as a whole. Thus there is a tendency for aided exports, especially if due to TBA, to go to declining industries. This, however, is not inconsistent with arguing that international competition in these types of industries has become more reliant on the availability of aid support.

7.5. Aid and Industry Performance

We consider our estimates of impact in 1980 and 1985 to be fairly reliable and roughly indicative of the trends over that period. No account is taken of the potential benefits from maintenance, spare parts or future export orders which require no aid. In total, these could add some 25 per cent to impact on an annual basis, and our results could be considered underestimates in this sense. There is little reason to believe that these indirect effects differ between the types of exports supported by multilateral as against TBA and their existence does not bear on our central purpose, the comparison of the two forms of aid. A possible exception is that multilateral orders won on the basis of demonstrating international competitiveness may be more likely to generate follow-on orders, and are largely independent of the size of the UK aid budget. Our evidence suggests, contrary to the claims by business groups and the Government that TBA is likely to confer greater commercial benefits, that multilateral aid tends to be of greater importance to the UK economy and to some industries. It should not be inferred, however, that an increase in contributions to MAAs would lead to a proportional increase in the value of contracts won by UK firms.

The principal conclusion is that multilateral aid has a greater impact on the economy than tied bilateral aid. This arises directly insofar as each £1m of multilateral aid is likely to generate £1.03m of exports and, in 1985, would have supported total output of £1.8m and 58 person-years of employment. On the other hand, £1m of TBA would only generate £0.66m of exports supporting, again in 1985, £1.1m of total output and 36 person-years of employment. There is also some evidence that industries winning contracts from multilateral agencies were somewhat stronger than those supported by TBA, but this should not be over-emphasised. The period 1979-81 witnessed a dramatic fall in UK exports which tended to 'weed out' weak

firms so that only the most competitive firms remained by the late 1980s and their export performance, measured as the income elasticity of demand for UK exports by industries, has improved (Landesmann and Snell, 1989). The most stable and competitive industries were in Electrical Engineering while those in Mechanical Engineering recovered very quickly.

Aided exports tended to increase as a share of exports for those industries benefiting from multilateral aid, which can be largely attributed to the increased volume of such aid and does not question the competitiveness of these industries. The volume of TBA fell, and so too did its contribution to industry exports. These observations permit no inferences. However, the MAA beneficiaries operated in a more competitive environment and tended to perform marginally better overall. We will return to this important issue in Chapter 9.

The implication, for aid policy, is that greater commercial benefits cannot be used as an argument to favour tied bilateral aid over multilateral aid; if impact *per se* is the maximand for this choice, multilateral aid is preferred. It follows that the commercial case for tied aid is somewhat weaker than commonly supposed. While the nature of LDC markets and the proliferation of tying among major donors suggests strongly that any unilateral untying would lead to a drop in exports to LDCs, the success of British firms in the market for multilateral projects suggests that the UK may not lose from multilateral untying.

CHAPTER 8. THE AID AND TRADE PROVISION, 1978-89

The Aid and Trade Provision (ATP) was introduced in 1978 to help British firms obtain orders of industrial or commercial importance, and of sound development potential, in LDCs by matching the assistance available to foreign firms from their governments. It is only a small part of UK bilateral aid, varying from around five per cent in the early 1980s up to around ten per cent and over in the mid-80s and back to around five per cent by the late 80s, and is specifically directed to orders from countries not normally receiving British aid. The evolution of ATP policy since 1978, its principal objectives and its position in the UK aid budget have been reviewed in Chapter 4. This chapter examines in detail the experience with ATP, paying particular attention to its commercial impact.

Section 8.1 sets mixed credits in their international context and outlines the basic arguments surrounding ATP. The evidence on the commercial benefits from ATP, which has been extensively written about and extends the arguments for tied aid, is reviewed in Section 8.2. The empirical core of the chapter is Section 8.3 which describes the distribution of ATP-supported contracts among industries and presents estimates of the potential impact of ATP in each of the years 1978 to 1989/90, in terms of exports, output and employment. The importance of ATP to particular industries, and indeed companies, is explored in Section 8.4 in the context of viewing ATP as an instrument of strategic trade policy (STP, Chapter 3). We argued in Chapter 4 that the development benefits of ATP are questionable, and return to this issue in Section 8.5 where we look at some evidence on the geographical and sectoral distribution of ATP to assess if there is a conflict between commercial and development objectives.

It was noted in Chapter 4 (p. 79) that the WPAT in 1977 was critical of mixed credits because they would go primarily to the richer LDCs (as shown in Section 8.5), would lead to a blurring of the distinction between aid and mixed credits (eg. the Rihand project discussed in 8.4) and may induce an escalation in the global use of mixed credits. This latter point, for which some evidence is provided in Section 8.1, is salient to the potential for ATP to provide strategic benefits as presented in

Chapter 3 (pp. 57-60). Section 8.6 reviews ATP from the perspective of whether the *firms* benefiting from ATP meet the criteria necessary to justify an export subsidy as STP, and presents the conclusion to this chapter. A more detailed discussion of strategic criteria and the *industries* benefiting from aided exports is provided in Section 8.4 and Chapter 9. We should note that if ATP cannot be supported as an instrument of STP there remains no convincing argument that it can generate net economic benefits for the UK, and we also argue that it is unlikely to be in the best interests of LDCs.

8.1. International Use of Mixed Credits

Mixed credits (*credit mixte* or associated financing) are a direct outgrowth of tied aid in which a grant element (aid or soft loan) is offered to defray part of the cost of a commercial contract to the LDC Government. There are two principal differences between mixed credits and tied bilateral aid. First, whereas TBA is generally equal to the contract value the amount of mixed credits are generally less, so that the grant element is less than 100 per cent, for which reason they are often compared to low-concessional aid (where the grant element is less than 50 per cent). Secondly, requests for mixed credits are normally instigated by the company seeking the contract; the project is not normally one initiated by the donor or an aid agency. Furthermore, mixed credits are only granted to LDCs with export credit cover, and are often closely associated with export credit insurance. Consequently, they are far more overtly commercial and trade-supporting than ordinary aid and critics argue that mixed credits divert scarce aid resources away from the poorest countries and the most developmentally oriented projects (see Section 8.5). Advocates counter that mixed credits provide an additional financial flow to LDCs when aid and bank credits are scarce. This dispute remains live (DAC, 1985:245) and most writers tend to position themselves clearly on one or other side of the divide (Section 8.2).

France was the only country making use of mixed credits throughout the 1970s but Italy passed the Ossola Law in 1977, permiting the provision of matching mixed credits and extended to pre-emptive assistance in 1981, and the UK introduced ATP in 1978. The 'explosion' in mixed credits followed the economic recession of the early 1980s when governments may have perceived a greater need to assist

exporters[1]: the volume of commited mixed credits rose from $3.4bn in 1981 to $4.6bn in 1982 and had fallen back to $2.7bn in 1984 (DAC, 1985:245). France has traditionally been considered as the country responsible for promoting and expanding the use of mixed credits, and it is probably the most aggressive user. In 1983-4, 52 per cent of all DAC associated financing was French and mixed credits represented 11 per cent of French bilateral aid. Canada accounted for 14 per cent of DAC mixed credits (equivalent to ten per cent of its bilateral aid) and the UK came next with 11 per cent (14 per cent), followed by the six per cent share of Italy (11 per cent). Thus, the UK allocated the highest share of its bilateral aid to mixed credits (partly due to the low aid budget at that time) and was among the major users. It should be mentioned that, in the same year, France, Germany, Italy, Japan and, to a lesser extent, the US, all had large volumes of low-concessionality aid (data from DAC, 1985:246).

From its inception the DAC has been concerned with reducing reliance on tied aid by exhorting members to open up their procurement procedures and/or render domestic competition for tied orders more competitive and subject to quality control. Success has been limited although members did agree that multilateral contributions should be untied and, in 1974, ten DAC countries signed an agreement to promote partial untying whereby procurement would be open to the donor and most LDCs (the UK and France were the most notable non-signatories). The expansion of mixed credits was seen as a further obstacle to reducing tying so the DAC tried to regulate the conditions under which associated financing can be employed. The first set of guidelines, in 1983, urged donors to confine mixed credits to priority projects meeting development standards as part of the recipient's development programme and where the grant element must be at least 20 per cent. This grant threshold was increased to 25 per cent in 1985 and the DAC began to draw up further guidelines to promote discipline and transparency in mixed credits (DAC, 1985:245). New regulations were proposed in 1987 which recommended a

1 As was the case for ATP in the UK, the Ossola Law was passed in response to business lobbying. Like their British counterparts, Italian firms complain that the relevant government agencies are slow at reaching decisions and inefficient, so that Italians lose orders, while French competitors have recourse to aggressively deployed *credit mixte* and the Japanese can avail of cheap yen financing (Norsa, 1988:100-2).

minimum grant element of 30 per cent (increased to 35 per cent in 1988) or 50 per cent for the poorest LDCs. It is important to note that the grant element to the LDC is equivalent to the export subsidy to the donor firm.

The ATP sits in an international context of increased use of mixed credits by a number of major donors, particularly France but also Italy in recent years; it is part of a trend towards tied aid through export subsidies. The DAC has tried to restrain this trend in two ways. First, by increasing the minimum grant element it is trying to shift mixed credits from export subsidies to something more clearly resembling tied aid. Second, by promoting procedures for assessing requests for mixed credits, it is trying to minimise the commercial aspects and promote the development potential. A proper evaluation of ATP must accept the context of mixed credits as instruments of donor export competition; as such, they may generate an increase in net global welfare if they meet the strategic criteria. However, one of these criteria is that they are used pre-emptively rather than in retaliation, and this has not been the case nor is it likely to be given the prevalence of moxed credits now.

The Objectives of ATP

The problem inherent in ATP, as in mixed credits, has been the conflict between achieving both commercial and development objectives, with each the responsibility of a different department (the DTI and ODA respectively, see Chapter 4). The way in which one evaluates ATP, and the conclusion reached, depends on how one reconciles these objectives. There are three options: either both are given equal importance, or one is taken as predominant. Unsurprisingly, critics of ATP tend to emphasise development objectives and argue that these have not been met whereas supporters cite the achievement of commercial objectives and argue that the policy has been a success. The first option is to treat ATP as a policy instrument intended to achieve both commercial and development objectives but, as a single instrument, it cannot successfully achieve two policy objectives and must fail (Toye and Clark, 1986). This argument is based on Tinbergen's principle that a separate instrument is needed for each objective of economic policy; a policy which maximises, or best achieves, the commercial objectives of the donor will not simultaneously maximise the development benefits to the recipient. The second view emphasises the need for

ATP to match the mixed credits of other donors, which implicitly treats ATP as an instrument of trade policy, rather than of development aid.[2]

Aid policy, however, can have multiple objectives, each associated with a distinct aspect of the aid budget. Thus, political objectives influence which LDCs receive aid while commercial and development criteria determine the choice of projects to support. From this perspective, ATP is an instrument of aid policy aimed at achieving commercial benefits subject to a development constraint. The question then becomes, once economic benefits are identified, whether ATP meets the development objective and "if it is less effective developmentally, can this be balanced against increased commercial benefits." (Toye and Clark, 1986:291). ATP may not contribute to development because commercial benefits are the source of ATP requests and, to many companies, development benefits are taken as given so that ODA appraisals of the development potential of projects are considered a delay rather than an important part of the process.

8.2. The Commercial Benefits of ATP

There is a direct commercial benefit to exporting companies and may be dynamic gains if ATP helps a company to penetrate a new market in which future orders are obtained without aid support. The fundamental issue in evaluating this benefit is whether the exports could have been won without ATP. Given the tightness of the LDC capital-projects market, the intensity of international competition and the aid support offered by other donors to their industries, the commercial argument that ATP assists UK firms maintain market share does not appear unreasonable (even with the promise of ATP many tenders are lost by UK firms). If firms are competitive, their ability to win follow-on orders will be greater (Pick, 1986, argues that ATP provided Balfour Beatty entry to the Indonesian market where they subsequently won a number of contracts without aid; Love and Dunlop, 1990, make a similar claim for John Brown Engineering in China). In essence, the arguments for the commercial benefits from ATP are the same as those of TBA, and need not be repeated, except that competition may be more intense for ATP projects (since they are initiated by companies rather than donors).

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2 It can be argued that mixed credits are really instruments of trade policy that are only defined as aid because the GATT prohibits export subsidies.

The most common method of measuring the benefits from ATP in the literature is to study particular projects and estimate the gain to the firms involved (HSPE, 1986; MacQuaide and Toye, 1986; NEI, 1988). A more elaborate procedure is to use IO impact analysis which, at the least, gives more generalisable results. May, Schumacher and Malek (1989) include ATP in some of their estimates for the impact of British aid, but do not isolate ATP sufficiently for our results to be compared with theirs. Love and Dunlop (1990) applied IO impact analysis to a John Brown Engineering (JBE) project in China and we will refer to some of their results in Section 8.3.

MacQuaide and Toye (1986) examined six early projects representing total ATP spending of £15m with exports worth £34m. These exports provided employment in UK firms trying to enter new markets, or protect existing markets, against actual or purported foreign competition. There were two cases of orders for spare-parts, one of a follow-on order (in a new market) and two cases of subsequent sales to neighbouring countries (these were in areas where the companies had a market share, and the importance of ATP should not be overestimated). There were definite commercial benefits but it should be noted that only two of the projects made a net contribution to development (and two a negative contribution). Compared to impact analysis, however, this study was more qualitative than quantitative and did not try to measure the benefits to the UK. The study lends some support to the argument that aided exports generate future orders, but at a very low level, and presents some support for the view that ATP is trade-protecting, if not trade-creating. On the other hand, the study is not representative of ATP: in particular, two of the six projects were for aircraft (and were the two of negative development impact, but of subsequent sales to neighbouring countries) whereas only four of the 120 ATP agreements before 1987 were for aircraft.

The commercial impact of ATP is most relevant to the individual firms and industries gaining exports. Over the period 1978-85, 47.6 per cent of ATP went to Electrical Engineering, 22 per cent to Mechanical Engineering and 14.4 per cent to Shipbuilding and other vehicles; eleven large firms accounted for 77 per cent of ATP (Toye and Clark, 1986; see Section 8.4). Relating this to the industries which

receive the most aid-support in other donors suggests that ATP has been focused in areas where foreign competition is strong. The five sectors most heavily assisted by French export subsidies are machine tools, electrical equipment, metalworking, aircraft-ships and construction (Melitz and Messerlin, 1987:162). German mixed financing, similarly, goes predominantly to electrical and mechanical engineering, construction and transport equipment (May, Schumacher and Malek, 1989:89).

One of the strongest advocates of greater use of ATP is McGregor (1987), representing the EGCI, who argues that ATP supported between 14,000 and 17,000 jobs a year and paid for itself in increased tax payments out of the output generated so that there was no net cost to the Exchequer. We will find broad agreement with the lower bound of his employment estimate but feel that he generally overstates the benefits; in particular, his analysis is inadequate for judging *net* benefits. Individual companies that have published ATP project studies tend to concentrate on the employment effects (HSPE, 1986, claim that each £1m of ATP orders supported 65 jobs in 1985/6; the corresponding figure implied by Love and Dunlop, 1990, is 360 person-years[3]) or the large number of small sub-contractors and suppliers that benefit (NEI, 1988, estimate that over 2,600 firms won contracts the £292m Rihand project). Most of these studies focus on the employment effect of ATP which we will address in Chapter 9.

8.3. The Impact of ATP on the Economy and on Industries

A fundamental difficulty with impact analysis is obtaining data on the level of new demand (ATP-supported exports, x_α, in this case) for each year classified by industry. We began with FAC (1987) which listed all ATP agreements before February 1987 with the year of agreement, ATP and contract value, a brief description of the project and the name of the company and LDC. Using this, we estimated the export value of ATP agreements in each year for the industries listed in Table 8.1 by, first, allocating contracts to industrial classifications and, second, deducting an allowance for local costs from the contract value (for details see

3 The high Love and Dunlop figure arises because they measure the impact of three projects: only one was supported by ATP but, they argue, the others would not have been won without the initial aid to enter the market. While the argument itself may be valid, the generalisation of the results to ATP is not.

Appendix B). The deduction was generally ten percent of the contract value (denoted k_α), for consultancy and goods exports, but 25 per cent for capital-intensive construction projects up to 40 per cent for very labour-intensive projects. While the choice of percentage to deduct is arbitrary, albeit based on the views of companies that operate overseas and have won ATP awards, the values are reasonable given that they can represent both local and sunk costs (the latter being primarily the costs of bidding for the contract).

Table 8.1: ATP-Recipient Industries

1	Industrial Plant and Steelwork	(IPlt)
2	Textile, Woodwork etc. Machinery	(TWMch)
3	Process Machinery and Contractors	(PMch)
4	Mining, Construction etc. Machinery	(MCMch)
5	Other Machinery, Mechanical Equipment	(OMch)
6	Insulated Wires and Cables	(IW&C)
7	Basic Electrical Equipment	(ElEq)
8	Telecommunications Equipment	(TlEq)
9	Motor Vehicles and Parts	(Mot)
10	Shipbuilding and Repairing	(Ships)
11	Aerospace	(Aero)
12	Other Vehicles	(OVch)
13	Construction	(Const)
14	Business Services	(BSer)
15	Research Services	(RSer)
16	Other Engineering	(OEng)
17	Other Production	(OPrd)
18	Other Services	(OSer)

NOTES: More detail on the composition of the industries and attribution of ATP contracts can be found in Appendix B, Table B.1

Table 8.2: Distribution of ATP Aided Exports, 1978-90

Industry	1978-86 x_α		1987-90 x_α		Total x_α
	£m	%	£m	%	%
1. IPlt	335.16	23.5	108.18	16.4	21.22
2. TWMch	11.25	0.8	14.71	2.2	1.24
3. PMch	33.82	2.4	26.13	4.0	2.87
4. MCMch	183.23	12.8	10.70	1.6	9.28
5. OMch	64.24	4.5	176.54	26.7	11.53
6. IW&C	114.30	8.0	25.53	3.9	6.69
7. ElEq	480.88	33.7	67.08	10.2	26.23
8. TlEq	6.44	0.5	83.31	12.6	4.30
9. Mot	6.25	0.5	8.01	1.2	0.68
10. Ships	58.63	3.8	28.85	4.4	4.19
11. Aero	20.01	1.4	-	-	0.96
12. OVch	65.01	4.6	29.13	4.4	4.51
13. Const	40.64	2.8	66.82	10.1	5.14
14. BSer	12.27	0.9	10.74	1.6	1.10
15. RSer	0.16	-	1.08	0.2	0.01
TOTAL	1428.25	100.0	660.62	100.0	£2088.9m

NOTES: The x_α for 1978-86 are estimated from FAC (1987) and the average is based on division by eight (since 1978 was only a partial year for ATP, and the data for 1986 may not have been complete). The x_α for 1987/8 to 1989/90 are estimated from data provided by the ODA (see Appendix B).

Industry Distribution of ATP-Supported Exports

Table 8.1 lists the fifteen industries which obtained ATP supported orders agreed between 1978 and 1990; for the purposes of presenting our results the 87 other industries in the economy (IO 1984) are grouped into three aggregate industries. ATP was highly concentrated in three industries between 1978 and 1986; 34 per cent went to ElEq, 24 per cent to IPlt, and 13 per cent to MCMch. Between 1987/8

and 1989/90, however, the x_α were somewhat more evenly distributed across OMch (27 per cent), IPlt (16 per cent), and TlEq, ElEq and Const above ten per cent (Table 8.2). With the exception of Aerospace, the industries in Table 8.2 figure prominently as recipients of x_τ and x_μ (Chapters 6 and 7; see Appendix Table B.2 for the distribution of x_α by year and industry).

The x_α are clearly more concentrated than either x_τ or x_μ as is particularly evident at the industrial group level. Whereas virtually all x_α were to MecEng, ElEng, Vehicles and Const (Table 8.2), these groups accounted for 64 per cent of x_τ (Table 6.1) and 76 per cent of x_μ (Table 7.3). Since we have previously suggested that x_μ are more likely to be associated with internationally competitive industries than are x_τ, it is worth considering which pattern x_α most resemble. More than two-thirds of total x_α went to just four industries - ElEq (26 per cent), IPlt (21 per cent), OMch (12 per cent) and MCMch (9 per cent) - and bears little resemblance to either TBA or multilateral distributions, for which these industries had similar shares (9 per cent, 3 per cent, 6 per cent and 9 or 12 per cent respectively, Table A.2). This point that ATP tends to benefit different industries to multilateral or bilateral aid is developed further in Section 8.4.

Having determined the elements of $\mathbf{x}_\alpha$ we then estimated the potential impact in each year between 1978 and 1990 (Table 8.3). By potential impact we mean the assumption that the x_α impact in the year in which the contract is agreed. In the previous two chapters we have assumed a one-year lag for measuring impact because the aid budget in one year is assumed not to generate orders until the following year. Companies seeking ATP have a longer lead time because they have been involved in negotiating for the contract before the aid is agreed. In the case of ATP the potential exports precede the aid, whereas the opposite is true for TBA or MAAs, and we believe this aid is transformed into physical exports much faster. Furthermore, since the impact is measured relative to a fixed (in time) IO structure, the principal impact ratios are independent of the year in which the impact occurs (employment, the most suspect estimate, is the main exception to this because we utilise the W_{qi} for the year of impact).

Table 8.3: Potential Annual Impact of ATP, 1978-90

YEAR	a_α £m.	x_α £m.	ρ_α	q_α £m.	w_α
1978	6.766	32.134	4.75	57.084	4363
1979	43.962	111.414	2.53	196.159	12818
1980	32.541	90.122	2.77	156.437	9928
1981	25.450	75.051	2.95	133.566	7153
1982	115.660	511.651	4.42	883.597	40226
1983	28.350	96.436	3.40	177.199	7179
1984	52.109	219.610	4.21	362.046	13049
1985	32.318	75.166	2.33	135.933	4459
1986	103.123	216.659	2.10	387.975	12259
TOTAL	**440.279**	**1428.243**	**3.24**	**2489.996**	**111434**
Ave.[1]	55.035	178.530	3.24	311.250	13929
1987/8	65.125	144.740	2.22	251.848	11270
1988/9	156.332	326.371	2.09	567.886	25414
1989/90	128.047	189.509	1.48	329.746	14757

NOTES: For further detail see Appendix B; all values are in current prices and refer to calender years except for the final three rows. Potential impact implies no time lag: a_α is Annual value of ATP agreements; x_α is Export value of ATP contracts agreed in each year; ρ_α is the export ratio for ATP; q_α is total output required to produce x_α; w_α is Employment, in person-years, supported by x_α, estimated as $q_{\alpha i} * W_{qi}$; the 1978 figure is an estimate because we did not have W_{qi}. The estimates for 1987-90 are based on applying the average (1978-86) $Q_{x\alpha}$ and $W_{x\alpha}$ to estimated x_α for 1987-90 inclusive; employment, at least, is overestimated.

1 Since 1978 was only a partial year,the average is obtained by dividing the total by eight.

The Impact of ATP

Table 8.3 presents estimates of the potential impact of ATP for each year to 1986, showing the value of ATP (a_α), the x_α, the ρ_α, the total output required (q_α) and the level of employment supported (w_α). The periods 1978-86 and 1987/8 to 1989/90 are distinguished for two reasons. First, they are from separate sources; the data for 1978-86 are from FAC (1987) and refer to calender years while the later data were provided by the ODA and relate to fiscal years.[4] Secondly, the potential impact for 1978 to 1986 inclusive is based on applying IO impact analysis to the $\mathbf{x}_\alpha$ for each year (and utilising the W_{qi} for each year), whereas the 1987-90 estimates, intended to bring the review up to date, are based on applying the aggregate impact multipliers ($Q_{x\alpha}$ and $W_{q\alpha}$) for the 1978-86 average to the three later years. Given increasing labour productivity, this is less than satisfactory for estimating w_α yet indicative overall.

The first obvious point is that ATP agreements tend to be quite bunched in 1982, 1986 and, to a lesser extent, 1988/9 although x_α are slightly more evenly spread as the export ratio varies. Annual variations are explained by two factors: the distortion due to a small number of very large contracts and the fact that ATP commited to a company in one year may not be realised in an agreement for a number of years, if at all (our figures relate only to when a contract is signed). The extreme bunching in 1982 is probably due to a coincidence of both factors, perhaps related to the end of the 1979-81 recession as public investment in LDCs recovered. The export ratio was particularly high in 1982 also, which is attributable to two very large awards: NEI received £17m of ATP (in addition to TBA) to support a project in Rihand, India, with a contract value of £231m (NEI, 1988, and 8.5 below) and Davy McKee used £25m of ATP to support a Mexican contract worth £200m. The high ρ_α in 1984 is largely attributable to GEC's Balco Power Project in India for which £33m of ATP supported a contract value of £130m. Finally, the low ρ_α for 1989/90 is largely due to a natural gas conversion project for AMEC International Construction in Turkey in which £62.5m of ATP was allocated to support a contract value of £68m (suggesting a strong desire to restore a foothold in Turkey after losing a Bhosporus Bridge project to the Japanese).

4 It is possible that our total for 1978-90 may miss some ATP awards since, in principle, the FAC data cover up to December 1986 while the additional data date from April 1987.

Allowing for these special influences on the export ratio, two general points emerge. First, and to be expected, ρ_α is considerably greater than either ρ_τ or ρ_μ; whereas £1m of ATP generated, on average over 1978-86, £3.34m in exports, TBA generated only £0.66m and multilateral aid £1.03m. This point is emphasised by business interests (eg. McGregor, 1987, who assumes ρ_α is four) to promote the commercial effectiveness of ATP in preference to TBA and multilateral aid. The counter-argument is that because the export ratio is so great the commercial considerations are paramount to the detriment of development criteria (Toye and Clark, 1986). The second general point is that the trend in ρ_α is downward from near three in the early 1980s to near two in the late 1980s, suggesting that the DAC have met some success in shifting mixed credits towards tied aid by increasing the minimum grant element. Given the high ρ_α ATP is commercially more beneficial, in relative terms (per £1m of aid), than other types of aid and also generates high exports so that, in volume terms over 1978-84, x_α was almost as great as x_τ (£1136m compared with £1327m, for less than a fifth of the expenditure on aid).

The relative impact of ATP can be evaluated by comparing the aggregate impact multipliers with those for x_τ and x_μ (Table 7.2). The average $Q_{x\alpha}$ was 1.74, but as high as 1.84 in 1984, compared to a $Q_{x\tau}$ of about 1.77 and $Q_{x\mu}$ of 1.8, suggesting that the industries benefiting most from ATP had relatively lower linkages. Given the high export ratio, the $Q_{a\alpha}$ of 5.64 is far greater than the $Q_{a\tau}$ (1.17) or $Q_{a\mu}$ (1.85). Table 8.3 shows that ATP supported about 14,000 person-years of employment on average (the lower bound of McGregor, 1987) which is not insignificant when it is accepted that about half would be engineering firms which tend to have their manufacturing capacity in areas of industrial decline. This gives rise to an $W_{x\alpha}$ of 78 person-years, higher than either $W_{x\tau}$ or $W_{x\mu}$, and a $W_{a\alpha}$ of some 253 person-years. Thus, it appears that ATP goes to industries with a slightly higher employment potential than the pattern of industries benefiting from bilateral or multilateral aid (see Section 9.3, next Chapter).

Although imported inputs are required to produce q_α the high export ratio again insures that net exports exceed the expenditure on aid so that, in transfer terms, ATP constitutes a net gain to the UK balance of payments. The tax return to the

Exchequer can also be quite high: tax revenue has been estimated at £22m in 1979, about half of ATP expenditure, and £23.6m in 1983, equivalent to 83 per cent of spending on ATP (for estimates of impact in these years see Tables B.4 and B.5); given that the tax return is between a fifth and a quarter of x_α, an export ratio above four suggests that the expenditure on ATP will be completely recouped. The export ratio of about two in the late 1980s is consistent with a tax return around 50 per cent of the outlay.

8.4. The Commercial Importance of ATP

We have demonstrated that the relative impact is considerable and that x_α are relatively heavily concentrated in only a few industries, therefore it is reasonable to expect that ATP will be of importance to those industries and companies given support. From a business perspective, ATP is of greater benefit than other forms of aid, and this explains why business lobbies are so vocally supportive of increased use of mixed credits (Chapter 4). It is also apparent that ATP meets some basic requirements of a strategic trade policy (STP): it assists UK firms to win orders in oligopolistic international markets and it is relatively concentrated. This merely begs the question - are the relevant markets sufficiently oligopolistic and is ATP concentrated in the 'most deserving', from a STP viewpoint, industries? We shed some light on these questions in this section, first examining industries benefiting from ATP and then considering individual companies.

The Importance of ATP to Industries

To briefly summarise the arguments of Chapter 3, mixed credits can be justified under STP if the industry exhibits monopoly rents and/or external economies. Monopoly rents are likely to arise in a concentrated oligopolistic market with high barriers to entry. While we have insufficient data for a full analysis of ATP markets according to these criteria, we can draw on a number of sources to suggest that this may be the case for some of the industries. External economies imply that there are technological spin-offs from the industry, which will tend to relate to barriers to entry if R&D expenditure represents a sunk cost. Again, we have insufficient data but will be able to draw some inferences. Basic data on the importance of ATP to industries are in Table 8.4.

Table 8.4: Importance of ATP to Industries, 1978-86 Average

	Industry	x_α £m	$x_{\alpha i}/e_i$ %	e_i/q_i %	O_i	W_{qi}	CR_5
1	IPlt	41.90	7.91	17.11	1.77	28.76	24
2	TWMch	1.41	0.20	56.29	1.71	32.40	34
3	PMch	4.23	0.95	27.07	1.60	27.72	26
4	MCMch	22.90	1.85	43.59	1.88	27.04	12
5	OMch	8.03	0.39	34.86	1.76	32.06	12
6	IW&C	14.29	6.53	18.56	1.59	23.97	57
7	ElEq	60.11	5.21	46.27	1.61	38.37	43
8	TlEq	0.81	0.04	35.91	1.52	30.12	48
9	Mot	0.78	0.02	34.54	1.72	22.38	70
10	Ships	7.33	1.91	18.21	1.72	42.74	73
11	Aero	2.50	0.08	59.00	1.55	29.30	77
12	OVch	8.13	4.59	23.32	1.62	48.35	80
13	Const	5.08	1.58	0.73	1.94	32.80	n/a
14	BSer	1.53	0.05	9.50	1.26	49.54	n/a
15	RSer	0.02	-	7.63	1.38	107.97	n/a
TOTAL		178.53	0.19	9.58	1.76	22.57	n/a

NOTES: Average x_α are derived from Table 8.2; $x_{\alpha i}/e_i$ and e_i/q_i are based on industry exports for 1984 as in the IO Table (CSO, 1988); O_i is the IO Output multiplier for each industry; Total O_i is the average for the entire economy; industry employment per £1m output, W_{qi}, and the share of the five (six in the case of Mot) largest firms in sales, CR_5, are derived from the 1985 Census of Industrial Production (Business Monitor, 1988); the figure for total is that for all production industries; n/a means not available.

As noted before, x_α go predominantly to contractor industries, especially mechanical and electrical engineering, and a particularly salient aspect of international construction markets is the cost, and importance, of the biddding process. The cost of a full tender is about one per cent of the contract value, more if

it is necessary to establish a local presence, compared to a profit margin of about five per cent; firms aim to win one in every five tenders to break even and US firms tend to avoid tenders where there are more than five serious competitors (Strassmann, 1988:43). There is no reason to believe that firms from other countries adopt different reasoning: "The rule of thumb is to be one of four or fewer serious competitors. But, if expected profits are exceptionally high or bidding costs exceptionally low (as with standard building) participation as one of about a dozen is often sanctioned" (Strassmann and Wells, 1988:234). Government support can alleviate the sunk cost implications of tendering; helping representatives of firms to make local contacts or promoting their product can increase the reputation of the firm while mixed credits are a precommitment which strengthens the position of the firm relative to other bidders, or matches other firms with government support.

The number of tenders for a contract is a reasonable indication of the degree of oligopoly in international construction markets, the implication being that there are both product and regional sub-markets so that effective competition is limited. Between July 1986 and June 1987, UK companies placed bids for 223 World Bank contracts and were successful in 88; of these, 47 received five or less bids and 20 attracted over 10 bids (there is no apparent relationship between size of contract and number of bidders; data supplied by the World Bank). Since firms are more likely to bid for World Bank contracts than commercial orders, if only because the tender costs are likely to be lower and administratively more convenient, it is reasonable to conclude that the effective competition for international contracting projects is quite low. This in itself is no guarantee that monopoly rents are earned; in fact, if firms can absorb the subsidy element of mixed credits into their margin, for example by charging higher prices for aid-supported contracts, then it is the quest for mixed credits themselves which becomes the rent-seeking activity, a possibility that cannot be discounted. On the other hand, price and mixed credit competition is fairly tight and the scope for increasing margins is limited - the World Bank reported that bid prices in 1986 were some 20 per cent below those of 1984 (Strassmann and Wells, 1988:234). Thus, aid support is likely to be important to exporters.

In the case of ATP, more so than for other forms of aid, $x_{\alpha i}/e_i$ tends to be high

for those industries for which x_α is relatively high (Table 8.4). In particular, x_α is equivalent to about eight per cent of IPlt exports, 6.5 per cent of IW&C exports and five per cent of ElEq exports, but only the last of these exports over 40 per cent of its output, while both others export less than 20 per cent. ATP is not strongly associated with export-oriented industries. However, these are all markets where competition has become more intense in the 1980s as demand in developed and Middle East countries fell while that in LDCs was constrained by lack of finance, especially in Latin America and Africa where the debt-constraints were greatest. This is evident in the market for heavy electrical equipment where trans-national mergers have allowed firms to "widen the constituent companies' access to markets and technologies and limit their financial commitment to R&D at a time when cash-flow from new orders is thin." (Thomas, 1990:7). Studies of the world markets for construction and heavy electrical equipment stress the importance of attractive financial packages, ie. aid support, in LDCs (Strassmann and Wells, 1988; Thomas and McGowan, 1990). The argument does not apply to all the industries receiving ATP, OVch being a case in point: while x_α accounted for almost five per cent of industry exports, this is not a market with high global concentration, nor are British railway companies at the technological forefront.

Technology is an important feature of global construction and heavy engineering markets, and is one of the spurs for trans-national mergers (see below). The US government has tended to offer less support to its firms than do other donors, so companies have tried to compensate with technology for what they lack in financial packages. The willingness and ability to transfer technological know-how is claimed to be the major comparative advantage for US construction companies, backed-up by a heavy R&D spending and a significant lead in computer-based data analysis for project management (Strassmann, 1988:38). It seems likely that British firms have slipped in the technology ratings and they have certainly fallen behind Germany and Japan in innovations. However, penetrating new markets is likley to assist technological development, by providing revenue and a potential outlet, so that ATP may encourage external economies rather than going to industries with the greatest technological spin-offs.

Although the industry IO output multiplier (O_i) is not a proxy for technological spin-offs it does represent linkages with the rest of the economy so that a relatively high O_i implies a high demand for intermediate inputs from other industries. Furthermore, technological innovation can arise from improved inputs in addition to creating demand for quality inputs. High linkages suggest the potential for external economies but, among the ATP-industries, only Const, MCMch and IPlt have above average O_i, although most of the industries are near the average. This suggests that if the projects in LDCs are technology-intensive, the ATP-industries are well placed to spread external economies. The argument for external economies is strongest for Electrical and Telecommunications equipment which, together, accounted for 30.5 per cent of all x_α and does not apply to vehicles (about ten per cent of the total); one cannot generalise about mechanical engineering industries. In sum, perhaps a third of x_α have the potential to generate external economies while a greater share, including some of the same products, goes to industries where global entry barriers are high.

It is not possible to demonstrate that ATP has gone primarily to the industries which meet STP criteria although we have indicated that some of the ATP-industries are contenders for STP. It is easier to demonstrate that some of the industries, notably vehicles, do not meet the criteria. From its inception ATP was essentially a mercantile export subsidy; firms were not granted ATP on the basis of a coherent trade, or aid, policy but in accordance with commercial arguments or political pressures (ie. rent-seeking). As indicated previously, one of the more persuasive commercial arguments related to employment potential which offers a reason why Ships and railway equipment (OVch) have been relatively successful - both can claim that production is relatively labour intensive (Table 8.4) so that support for exports will protect employment. The ATP-industries tend to have an above average employment potential. However, ATP is requested by firms and to understand the pattern of awards one should consider which firms are prominent.

The Importance of ATP to Individual Companies

Table 8.5 lists the twenty companies that won ATP-supported orders (k_α) worth more than £20m in the period 1978-90. It is clear that ATP is highly concentrated in

a few companies: five firms together accounted for 45.5 per cent of all ATP disbursed and 54 per cent of k_α while twenty companies together received 80 per cent of ATP to support 87 per cent of total k_α. There is some evidence that ATP has been more evenly spread in recent years: between 1978 and 1986, 83 per cent of ATP and 88 per cent of k_α went to fifteen firms and the top-five of these accounted for over half of ATP and two-thirds of contract value (Morrissey, 1990b). The ratio k_α/a_α is the inverse of the effective subsidy to companies and similar to the export ratio. The average ratio for the ATP-5 for 1978-86 was 4.6 and 4.3 for all ATP (Morrissey, 1990b); the lower values in Table 8.5 reflect the effect of the minimum grant-element in mixed credits rising from 25 per cent in the early 1980s to 35 per cent since 1988.

The data on ratios in Table 8.5 indicate that the DAC guidelines have not always been strictly adhered to. The lower the ratio the higher the implicit grant-element and the more defensible is ATP as a form of aid; a ratio below three could be due to consultancy or training contracts, where ATP finance can be up to 100 per cent,[5] or may reflect intensity of competition so that an attractive financial package is required (which appears to have been the case for the AMEC project in Turkey, mentioned above). On the other hand, a ratio above four suggests that the grant-element was below the DAC minimum. The most obvious cases of this are the Rihand project for NEI in India (implied grant-element of only 7 per cent)[6], the Sicartsa steelworks project for Davy McKee in Mexico (implied grant of 16 per cent) and an STC order to provide submarine cables to Indonesia (implied grant of about three per cent). It is seriously questionable whether such awards qualify as aid of an form.

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5 Since these contracts are normally small and go to consultancy firms, few are included in Table 8.5 except for a number of feasibility studies won by large contractors and often the precurser of large projects. The allowable ATP subsidy in consultancy was reduced from 100 to 50 per cent in 1988 although some training and technical cooperation is still eligible for 100 per cent ATP/TC funding.

6 This is, however, misleading since although £17m of ATP was allocated to Rihand in 1982, the project is not yet complete and received a further £100m from the Bilateral Aid budget to India. Mixing ATP with TBA funds is an undesirable feature of aid policy which confuses the objectives of aid.

Table 8.5: Companies Receiving the most ATP, 1978-90

Company	ATP £m	k_α £m	Ratio	Contracts No.
GEC	129.8	422.8	3.26	20
NEI	46.9	344.6	7.35	4
Davy McKee	58.7	284.5	4.85	5
Balfour Beatty	63.4	221.1	3.49	20
Biwater	59.5	194.0	3.29	1
ATP-5	**358.3**	**1467.0**	**4.09**	**50**
	45.5%	53.6%		
JBE	49.0	155.3	3.17	9
STC	17.4	148.0	8.52	3
BMC	15.1	80.1	5.33	3
BRE	16.2	71.7	4.44	5
AMEC Int.	62.9	68.4	1.09	2
HSPE	18.8	56.4	3.00	2
Boving	17.9	51.2	2.86	1
Babcock	12.6	50.0	3.95	1
Comm. S.	14.8	47.9	3.23	2
A&P	14.0	45.0	3.21	2
Wimpey	10.0	35.0	3.50	1
Rolls Royce	10.0	28.0	2.80	1
Toyu (UK)	6.1	24.0	3.96	1
BAe	9.3	22.2	2.38	5
British Shipbuilders	6.7	22.2	3.32	1
ATP-15	**275.3**	**905.4**	**3.29**	**39**
	35.0%	33.1%		
ATP TOTAL	**787.3**	**2738.6**	**3.48**	**203**

NOTES: All figures rounded; where more than one company is named in an award the contract (k_α) is allocated to the principal contractor. Balfour Beatty includes BICC (its parent company); GEC includes Plessey; Davy McKee includes Davy Leowy (both owned by Davy Corp.); HSPE includes Brush Electric. Unfamiliar abbreviations: A&P - Austin and Pickersgill; BMC - British Mining Consultants; BRE - British Rail Engineering; Comm. S. - Communication Supplies; STC - Submarine Transmission Cables. **RATIO** is the orders:ATP ratio as defined in text.

The Rihand project, in fact, provides an interesting case study highlighting many of the issues relating to ATP. First, the project was chosen by NEI as a case study to advertise the commercial benefits that can be obtained from relatively small amounts of ATP, emphasising the thousands of small firms obtaining supply contracts (NEI, 1988). This report was circulated to a variety of Government Departments and MPs and, in the view of the company, was an effective publicity exercise. The project has been mentioned by the DTI as an example of the benefits of ATP (at a Conference to launch CBI, 1990). Second, however, is the fact that the project was not obviously a success. Poor management and cost over-runs earned NEI a bad name in India, and within parts of Whitehall; while NEI complained that designs were changed and local contractors performed badly, it was rumourde that the second stage of the project might be awarded to GEC (*Investors Chroncle*, 4.11.88, p. 49). In fact, NEI invested considerable time and effort in saving the project and their reputation so that it looks like being completed successfully (National Audit Office, 1990)

This highlights the intensity of competition between GEC and NEI, Britain's leaders in heavy electrical engineering, especially power plant. Within the UK, NEI has lost market share to GEC and both have been engaged in the merger activity that is transforming the structure of the global power plant industry. Three factors encourage such mergers: falling demand in traditionally protected home markets, the drive for large and complex technologies and an increase in supplier concentration (Thomas, 1990:6). In 1987, Brown Boveri of Switzerland merged with ASEA of Sweden to form the world's largest electro-technical company, pushing Siemens into second place as the leading exporter. GEC formed a joint venture with Siemens to purchase Plessey and has recently merged its heavy electrical business with Alsthom of France. NEI formed a joint venture with Mitsubishi, which was beneficial in providing access to Japanese aid, while Rolls Royce, which has a joint venture with ASEA Brown Boveri, has been buying into NEI (*Investors Chronicle, op. cit.*) and now controls the company. Power plant is clearly an industry with high barriers to entry, is technology-intensive and probably exhibits monopoly rents. Trans-national mergers imply that a donor cannot be certain that its companies derive the full benefit from aid-assisted exports and thereby undermine the case for tying, especially in STP terms.

The third, and final, point in relation to Rihand is that its contribution to development objectives has been questioned.[7] While the ODA appraised Rihand as the cheapest means of meeting urgently required generating capacity and therefore likely to met development criteria, monitoring of the project revealed a number of problems. Some of these were local, due to poor infrastructure and inadequate coal and water supplies, but others related to NEI, such as poor co-ordination and timing of civil and engineering works and doubts about the capacity of the power transmission system, while there was worry that it may create environmental problems (National Audit Office, 1990:12-16). This highlights the issue to which we turn in the next section, are the commercial benefits of ATP at the expense of development objectives?

8.5. ATP and Development

There are a number of reasons why ATP is less likely than normal aid to meet development objectives, arising because it is initiated by companies and commercial objectives have explicitly higher weight than development objectives. First, it is more likely than normal aid to go to relatively rich LDCs which are more likely to have access to the commercial credit and export credit guarantees necessary to finance the non-ATP part of a project. Secondly, it is designed to support exports of capital goods. Third, the pressures from companies to minimise the time taken to process requests constrains the ability of the ODA to appraise the development potential of projects. These issues will be considered in turn but first it is necessary to dispel the view that ATP only determines whether UK firms win a contract chosen by the LDC as part of a development programme:

> An important consideration to emerge from these cases is the danger of taking a positive request from a developing country as *prima facie* evidence [of] beneficial consequences for development. Requests are just as likely (some would say rather more likely) to be motivated by the search for prestige or the desire to escape urgent distress ... There are obvious possibilities of collusion between developing country governments and order-starved UK firms to present non-development projects as if they were developmental.
>
> (MacQuaide and Toye, 1986:38)

7 Davy McKee's Sicartsa project, another beneficiary of ATP, has also been criticised as a development failure (FAC, 1987)

Table 8.6: Distribution of ATP by Recipient LDC, 1987-90

COUNTRY		No. of Contracts	a_α £m	a_α %	k_α £m	a_α as % k_α
Cyprus	U	1	0.87	0.2	3.47	25.1
Egypt	M	5	2.99	0.9	6.95	43.1
Jordan	M	2	5.58	1.6	10.59	52.7
Morocco	M	3	13.71	3.9	36.83	37.2
Red Sea		1	0.19	0.1	0.38	49.9
Tunisia	M	2	0.91	0.3	2.70	33.6
Turkey	M	4	65.01	18.6	74.26	87.5
Yemen AR.	M	1	1.92	0.6	3.84	50.1
EMENA		**19**	**91.18**	**26.1**	**139.00**	**65.6**
Colombia	M	1	4.94	1.4	8.60	57.4
Panama	U	1	6.96	2.0	14.22	48.9
Peru	M	1	0.15	-	0.15	100.0
LA&C		**3**	**12.05**	**3.4**	**22.97**	**52.4**
Cameroon	M	2	2.11	0.6	8.10	26.0
Kenya	P	9	27.11	7.8	79.63	34.0
Malawi	P	3	4.67	1.3	13.84	33.8
Swaziland	M	1	0.12	-	0.41	30.0
Zimbabwe	M	2	5.17	1.5	14.21	36.4
AFRICA		**17**	**39.17**	**11.2**	**116.19**	**33.7**
Burma	P	1	0.04	-	0.04	100.0
China	P	17	100.79	28.8	326.94	30.1
India	P	3	29.24	8.4	96.15	30.4
Indonesia	P	12	43.16	12.3	57.58	75.0
Malaysia	M	4	4.97	1.4	7.46	66.7
Pakistan	P	3	8.53	2.4	21.95	38.8
Philippines	M	1	13.13	3.8	37.50	35.0
Sri Lanka	P	1	2.68	0.8	8.89	30.1
Thailand	M	2	4.64	1.3	12.94	35.9
ASIA		**44**	**207.17**	**59.3**	**569.45**	**36.4**
TOTAL		**83**	**349.57**	**100.0**	**847.61**	**41.2**

NOTES: See Table 8.7.

Table 8.7: Distribution of ATP by per capita GNP, 1978-90

	1978-86			1987-90		
	a_α	k_α	a_α/k_α	a_α	k_α	a_α/k_α
	£m	£m	%	£m	£m	%
P-countries	168.91	686.52	24.6	86.19	181.93	47.4
%	38.36	36.20		24.86	21.46	
+China & India	234.39	1128.10	20.8	216.22	605.02	35.7
%	53.24	59.48		61.85	71.38	
M-countries	56.49	188.35	30.0	125.33	224.52	55.8
%	12.83	9.93		35.88	26.49	
U-countries	149.09	579.85	25.7	7.83	17.69	44.3
%	33.86	30.57		2.24	2.09	

NOTES TO TABLES 8.6 AND 8.7: For each country Table 8.6 gives the number of ATP contracts awarded; the value of a_α in £m and as a percentage of total ATP; k_α in £m and the ratio a_α/k_α as a percentage. The countries are grouped in regions, with EMENA and LA&C as defined for Table 4.6. The countries in Table 8.7 are grouped according to relative poverty as measured by per capita GNP. The groups are: **P** - low income countries; for 1978-86, the fifty poorest countries in 1982 per capita GNP; for 1987-90, the forty-two countries with per capita GNP below $500 in 1987; figures are given excluding and then including China and India. **M** - lower middle income countries; for 1978-86, those ranking between 51 and 72 inclusive in the poorest countries; for 1987-90, those with per capita incomes between $500 and $2,000 in 1987. **U** - upper middle income countries; rankings 73 to 94 in 1982, and 1987 incomes between $2,000 and $6,000. Countries with populations below one million are included in the relevant income group.

SOURCES: Data on ATP from FAC (1987) and ODA; GNP per capita 1982 from World Bank (1984), and for 1987 from World Bank (1989).

We have argued, in Chapter 4, that ATP over 1978-86 was more likely to go to the relatively rich LDCs than was bilateral UK aid. The LDCs receiving ATP over the period 1987-90 are detailed in Table 8.6, and summary data for 1978-86 and 1987-90 are compared in Table 8.7. A number of trends can be discerned. First, among the poorest countries, China replaced India as the major recipient, largely due to the introduction of a soft loan form of ATP.[8] The share of the poorest countries excluding these two in ATP fell from over a third to a quarter but, if they are included, rose from over half to over 60 per cent. Whichever way the poorest are grouped, the subsidy implicit in ATP rose. Again excluding China and India, whose large populations constitute a special case while large projects distort their averages, the increase in the implicit subsidy from 25 to 47 per cent is entirely in line with DAC guidelines and is therefore encouraging.

There are a number of indications that the allocation of ATP moved closer to the norms of aid in the late 1980s: the implicit subsidy rose for all country groups, and the value and share of ATP going to upper middle income countries fell appreciably. The increase in the subsidy to the poorest countries is desirable because it reduces the costs of projects, provided the projects are themselves desirable or releases resources for other development uses. However, the clearest change in ATP between the two periods is that the value and share of ATP to lower middle income countries increased, the share from 13 to 36 per cent, while the implicit subsidy rose from 30 to 56 per cent. This is likely to reflect commercial pressures rather than development objectives since these, not the poorest, are the countries with sufficient funds to initiate large energy and industrial schemes; they are the best source of present and future orders.

The most widespread criticism of ATP has been that excessive emphasis is placed on commercial considerations so that little has been done to ensure that development criteria are met (Toye and Clark, 1986; Toye, 1991). There is ample evidence that the ODA have had to rush appraisal of projects requesting ATP and that,

8 Pressure to introduce a soft-loan ATP came from China and Indonesia, who were believed to prefer aid in this form and were indeed major recipients of soft-loans in the first two years. As a percentage of total ATP allocated, the soft-loan facility varied from 22.6% in 1987/8 to 51% in 1988/9 and 31% in 1989/90, and the implicit subsidy was normally greater than for mixed credits.

consequently, they have been unable to properly evaluate the development potential (FAC, 1987; National Audit Office, 1990). There is also little difficulty in pointing to ATP projects that have failed, in development terms: Rihand and Sicartsa as already mentioned; two early ATP awards helped BAe provide aircraft to Senegal and Guinea Bissau and while BAe benefited from the sale of surplus stock the recipients found it a financial burden to maintain them (MacQuaide and Toye, 1986). The provision of gas turbines to Egypt was rejected by the ODA on development grounds, as being a cost-inefficient means of generating power, but was accepted for ATP to assist Rolls Royce in entering a new market (Mosley, evidence to FAC, 1987:101). Two other large ATP-supported power projects in India at the time of Rihand also failed to realise their development potential. The Amlohri coal mine, intended to supply Rihand, fell long behind schedule, generated pollution and created difficulties in resettlement, land reclamation and re-afforestation. However, the blame lay largely on the Indian side and, in fact, 80 per cent of the allocated ATP was never taken-up because the Indians preferred non-UK supplies. The BALCO power plant was fully financed by the UK, with £33m in ATP, £61m in TBA and £37m local costs, although the ODA appraisal argued that it would be a sub-optimal use of resources, which transpired to be true (all evidence from National Audit Office, 1990).

It would be misleading to imply that ATP projects are any more likely to fail, in development terms, than TBA projects, while it is notoriously difficult to demonstrate that aid in general has assisted development (see Chapter 2). There are *a priori* reasons to believe that ATP is less likely to try to confer definite development gains than other types of aid, while the concept and administrative structure of mixed credits reveals that they are part of trade, rather than aid, strategies. The evidence on ATP is that it has developed in an *ad hoc* manner; it is not, and has not been, part of a coherent policy.

8.6. Is ATP a Strategic Export Subsidy?

The Aid and Trade Provision was originally introduced as an aid policy instrument to increase the commercial benefits from aid by offering a 25 per cent grant element in financing projects in LDCs which have development potential and are open to

international competition. The second constraint was dropped as early as 1980 when ATP could be given for projects initiated by UK companies, and negotiated contracts now feature prominently in ATP awards. There is little evidence of a concerted attempt to meet even the minimum development constraint; the ability of the ODA to evaluate proposals is hampered by limited resources and increasingly effective pressure from the DTI and business lobbies for faster approval of proposals. ATP is *de facto* an export subsidy to British companies operating in underdeveloped and developing countries, with the justification that foreign competitors have access to comparable subsidies.

It is indisputable that ATP generates considerable commercial benefits per unit expenditure. Our impact measures can be interpreted as upper estimates of the direct commercial loss that would result if ATP were cut from the aid budget (the net loss would, of course, depend on how the money saved by government was reallocated). For an average year between 1978 and 1986, some 14,000 jobs could conceivably have been lost if there was no ATP. This would be the cost of £180m less in exports, a small fraction of total exports but significant to some industries and firms. For the average year, each £1m of ATP supported about 250 person-years of employment, made a net contribution to the trade surplus and repaid 50 to 75 per cent of its cost in increased tax revenue. Again on average, each £1m of ATP supported some £3.2m of exports and required total output worth up to £5.6m. The commercial benefits were great and tended to be concentrated in electrical and mechanical engineering industries and in the large companies.

As a policy instrument designed to increase the commercial benefits from aid, ATP can be said to have achieved its objective. This does not, however, imply that there has been a net economic gain to the UK, an issue pursued in Chapter 9. Although it does have some of the required features, going largely to a few firms operating in technology-intensive industries with high barriers to entry and highly concentrated international competition, ATP does not clearly meet the criteria for a strategic aid policy and could not, in its present form, be justified on that basis. The defence of ATP is in its commercial value in supporting exports and, as such, its rationale is not within aid policy.

While one can argue that ATP may comply with the strategic criteria in regard to certain Electrical and Telecommunications industries, and hence that some of the firms listed in Table 8.5 may be deemed 'deserving' of a strategic export subsidy, there are four counter-arguments. First, the companies in question are increasingly involved in international mergers and consortia so that the British Government cannot assume that the subsidy does indeed capture any monopoly rent for the UK. Second, where all major donors adopt matching mixed credit subsidies the strategic objective, premised on pre-emptive subsidies, is undermined. Thus the DAC policy of increasing the grant element in mixed credits under guidelines to be adopted by all donors achieves the objective of rendering such credits more like aid and also weakens the argument for such export subsidies.

Third, the firms most successful in winning ATP tend to be industries with relatively high employment levels relative to output (industries that could be called labour-friendly) and also with relatively high wage settlements. In the UK the engineering and automobile industries tend to set the pace in annual wage agreements. It follows that some of the benefit of the subsidy goes to labour in the form of higher wage payments rather than higher employment (since productivity tends to rise quickly in these industries). Consequently, firms or industries competing for similar labour but not deriving benefit from ATP face pressure to pay higher wages than need be the case. Providing a subsidy to one group of firms can impinge on the competitiveness of other firms using similar factors.

Finally, there is evidence that ATP has been associated with rent-seeking. At the very least, the ATP-5 and many of the ATP-15 actively lobby the government for support out of the aid budget, commission reports and studies to highlight the gross commercial benefits from aid support and, often, have close links with government decision-makers if not the party in power (see Chapter 4 and Morrissey, 1990b). It is reasonable to conclude that those firms that have benefited from ATP are those with political influence, not necessarily those that would be declared deserving under strategic economic criteria. Thus ATP would appear to 'fail' the strategic criteria test.

CHAPTER 9. AID IMPACT AND EXPORT COMPETITION

Although humanitarian prerogatives and development assistance are generally put forward as the *raison d'etre* for aid, a core theme of this thesis is that the economic and political interests, internal and external, of donors are the basic determinants of aid policy. The last few chapters have considered the three principal components of the aid budget - tied bilateral aid, multilateral aid and ATP - and have quantified their impact on the economy and evaluated their commercial importance. In this chapter these three components are considered together, to evaluate the overall impact of aid and compare the contribution of each type. This provides an indicator of the commercial self-interest in aid, especially certain types. We consider the implications for aid policy, and ask if this is an efficient means of providing commercial benefits, considering then the potential for net economic gains and the effect on global economic welfare.

Section 9.1 takes 1986 as a base year and presents estimates of the aggregate impact of aid on the UK, identifying the political weight of commercial self-interest. A basic tenet of the political economy approach to aid policy is that the aid budget is formulated through a process reconciling competing objectives and pressures. Those promoting aid for development hold that the present budget is too commercially oriented while business interests counter that it offers them insufficient financial assistance relative to other major donors. In order to place more substance on these competing demands, in Section 9.2 we propose two alternative aid policies, one strongly directed towards development needs, the other explicitly commercial in its orientation, and present estimates of their impact. This allows us to evaluate the commercial costs of adopting an overtly development-oriented aid budget, which are a measure of the strength of opposition any government would face if it tried to reform aid policy in this way.

We then turn to the question of whether aid is an efficient means of promoting commercial interests. While the transfer principle explains why donors will want some return, economic and political, from their aid, it does not justify the use of aid

as an export subsidy. The first issue we address, in Section 9.3, is the opportunity cost of using aid: is aid the best allocation of government funds to maximise impact? The method adopted to answer this question, in line with the theme of the thesis, is to present estimates of the IO impact of alternative uses of government spending and compare these with aid. We then focus on the debate about the employment effects of export subsidies, concluding that they are generally overstated but depend crucially on whether the subsidies are trade-creating.

A related issue deserves mention although it is outside the scope of our analysis. In a broadly public choice perspective, allocating public expenditure to aid is justified to the extent that taxpayers are willing to transfer resources to poor countries, and public acceptance seems to be greatest for humanitarian assistance. Once aid funds are used to support exports, there is an implicit redistribution from domestic taxpayers to companies, which may be less acceptable to the public. To the extent that public support for development aid is mobilised, there may be political costs to the government from a more commercial aid policy. The development lobby, comprising outsiders, must mobilise public support if it is to counter the business lobby (which can quantify the gross benefits from tying by citing impact, although this shrouds the net economic effects).

Strategic policy considerations suggest that export subsidies can increase domestic firms share of LDC markets so that they are trade-creating and, under restrictive conditions, increase global welfare, implying that tied aid would be best used if it subsidised only the exports of industries earning monopoly profits or exhibiting external economies. This issue is addressed in Section 9.4, where we examine the contribution of aid to export competition and evaluate this against a set of criteria for how aid support should be targeted to derive the highest strategic gains. In terms of the net economic effects, only strategic arguments can provide a justification for tying on efficiency and welfare grounds; if this defence does not hold, no economic defence exists and political economy must then be examined for an explanation of tying. Building on the appraisal of ATP in the previous chapter, we argue that strategic criteria have not been met.

Section 9.5, the conclusion, presents a major argument of this thesis: political influence and commercial self-interest have been the principal determinants of British aid policy. Given the constraint of commercial objectives, what reforms are feasible to enhance the development effectiveness? The means to gain commercial benefits is through strategic policy; if aid is to subsidise exports, then specific industries should be targeted. If transfer principles require that the impact of aid must attain some level, multilateral aid and mixed credits are the best means to achieve this. Development objectives are best served through untied bilateral aid and, perhaps, large-scale aid provided by multilateral donors.

9.1. The Overall Impact of the UK Aid Budget

Availing of the earlier results of IO analysis, the impact of UK aid on the domestic economy was estimated for 1986 and the results are in Table 9.1 which distinguishes four components of total aid. On the assumption that ATP impacts in the year of offer, the a_α of £103m is for 1986; the other values were derived from impact analysis, and some were included in Table 8.3. The values for a_μ and a_τ are for 1985, but the corresponding impact values are for 1986 and derived as in Table 7.2, and some are indeed the same (because industry' shares of aided-exports are assumed constant). The treatment of total bilateral aid (a_β) deserves some comment. The formally untied components of bilateral aid include some which generate expenditure in the UK, most obviously where they support UK employment and indirectly when they support persons who will spend some of the money in the UK; we desired to include some allowance for these benefits.

Non-financial bilateral aid in 1985 included £36m for administration; since the number of employees per £1m of output in Miscellaneous Services was 88, this could have represented 3184 employees, which we rounded up to 4000 to recognise other contributions, such as the teaching/training staff indirectly employed by the £62m on students and trainees (foreign but in the UK). Some £120m was spent in the UK services sector, which would have represented intermediate demand of about £23m, which we include as a contribution to output. We allowed £25m as the value of exports associated with TCA and some £25m for

income tax revenue from the personnel employed. These figures were added to the relevant figures for a_τ to derive the figures in the a_β column. The totals for all aid (a) are the sums for a_μ, a_β and a_α; since the latter was 1986 rather than 1985, this total does not correspond to the official aid budget.

Table 9.1: Impact of UK Aid, by Type, in 1986

		μ	β	τ	α	a
a_a	£m	495.0	780.0	304.0	103.1	1378.1
ρ_a		1.03	0.29	0.66	2.10	1.45
x_a	£m	509.9	225.0	200.6	216.7	951.5
q_a	£m	902.4	371.0	347.0	388.0	1661.4
Q_{xa}		1.77	1.65	1.73	1.79	1.75
Q_a		1.82	0.48	1.14	3.76	1.21
w_a		27560	14500	10484	12259	54319
W_{xa}		54.06	64.44	52.26	56.58	57.09
W_a		55.68	18.59	34.49	121.75	39.63
Tax	%	24.39	8.97	15.35	50.73	21.02
Trade	%	5.36	-	2.11	2.28	10.01
BoP	%	4.97	-	1.86	2.04	8.89

NOTES AND SOURCES: All values rounded and estimate obtained from IOt impact analysis; the variables are the same as for Table 7.2, except for those noted below. Total aid (a) is decomposed into multilateral (μ), bilateral (β), tied bilateral (τ) and ATP (α). Tax denotes total tax revenues associated with q_a expressed as a percentage of aid; Trade is x_a expressed as a percentage of total exports to the 'Rest of the World', which is roughly equivalent to LDCs (total £9509m in 1986; *The Pink Book*, CSO, 1988, Table 2.1); BoP is x_a as a percentage of the visible trade balance (-£8463m in 1986, *Economic Trends Annual Supplement*, 1988:128).

The greatest benefit in volume terms is from a_μ and this is a general result since the value of a_μ tends to always exceed a_τ and has a higher export ratio. ATP, because it has the highest export ratio, will always be of the greatest relative benefit. However, as shown in Chapter 8, the value of ATP, and the value of associated exports, varies considerably from year to year. In respect of 1986, a_α was higher than normal but ρ_α was considerably lower so that x_α, in volume terms, is quite representative of ATP. Furthermore, the low value of ρ_α implies that Q_α and W_α are relatively low compared to normal. For comparative purposes, 1986 is largely representative of the period 1979-88.

The total output evoked by aided-exports is almost four times the value of aid for ATP, nearly twice the value of multilateral aid but 1.2 times the total aid budget due to the effect of bilateral aid. Each £1m of ATP could have supported 112 jobs, compared to 56 for a_μ and 40 per £1m aid for the budget as a whole. In volume terms, a_μ accounted for 54 per cent of total x_a compared to 36 per cent of a, and also supported the greatest number of employees. Although x_α supported more employment than TBA, 12,260 compared to 10,484, once allowance is made for administrative staff and other personnel, the bilateral budget in total supports 14,500 person-years of employment, second to $a_\mu$and above ATP.

The output and employment effects depend on the set of industries winning the exports, whether collectively they have a relatively high employment potential (W_{xa}) or generate relatively high demands for the output of other industries (Q_{xa}). On these two criteria, the industries winning ATP are of greater benefit to the economy; each £1m of x_α requires total output of some £1.8m which could provide 57 person-years of employment. Overall, there are only small differences between the sets of industries winning each type of aided export in terms of their relative collective impact (and we could not consider the differences to be significant). Quite simply, the initial volume of aid and the export ratio are the fundamental determinants of impact, and information on both is sufficient to generate reasonable estimates of impact.

We estimate the return to the Exchequer by way of increased tax receipts due to increased production as being about a fifth of the aid budget, ranging from almost a tenth for bilateral aid, to a quarter for multilateral aid and half for ATP. The contribution of aid to exports and the balance of payments is not negligible. Although x_a were less than one per cent of total visible exports, they accounted for ten per cent of exports to LDCs (broadly speaking) and the value of net exports attributable to aid (once imported input requirements are deducted) was equivalent to almost nine per cent of the (negative) visible trade balance.

How does this information on impact relate to actual and prospective aid policy? It is easy to see why commercial lobbies promote ATP and tying, although we have shown that the emphasis on a_τ over a_μ is misguided, and not difficult to understand why the government has emphasised these gross gains. It is clear that aid generates a significant commercial return, but we do not know what return the government desires, or would accept (in fact, groups within government may desire different returns). It may be reasonable to accept the impact of a_μ as a standard and ATP as a measure of commercial objectives. If we can evaluate the impact of policies, it is possible to identify how interests will react and how policy mixes can compromise a variety of objectives. Perhaps of greater importance, we may compel the government to acknowledge the impact criterion, admit that it conflicts with other objectives, and indicate the weight attached to it.

9.2. The Impact of Alternative Aid Policies

We will find it convenient to assume that the UK aid budget is doubled, so that we can then analyse alternative packages for allocating the extra spending. It is reasonable to ask how likely such an increase is so we must consider the factors determining the size of the aid budget. Given the state of the economy, is Britain now willing to respond to demands to increase the quantity of aid? The models reviewed in Chapter 4 suggest that falling unemployment and rising GNP would permit increased aid although, given the trade deficit, there would be strong pressure for tying. The present budget surplus can be interpreted as a measure of government frugality, supporting Beenstock's (1980) approach, and bodes ill for

any increase. We have already shown that the real value of UK aid has fallen dramatically during the 1980s; this was a direct consequence of Conservative public policy and parsimony and although the real value of aid has been increased in recent years there is no guarantee that this trend will continue. However, the estimates presented can be interpreted either as alternatives to existing policy or as possible allocations of an increased budget (one could scale the results to the appropriate magnitude of any increase).

We will estimate the impact of two alternative aid policies. The first is a strategy of 'Aid to the Poorest' (a_1) in which relatively untied bilateral aid is directed at agriculture and rural infrastructure development. This could be considered as a minimum impact but high effectiveness strategy. The second is overt 'Commercial Aid' (a_2) a large increase in ATP and tied bilateral aid producing a high impact but low effectiveness strategy. These are intended to delimit bounds within which feasible aid policies could be constructed. We note that a development policy (a_1) is justified by its effectiveness whereas the commercial policy must be defended according to its impact and opportunity cost (see Section 9.3).

An elaborate analysis of the economic effects on the UK of adopting alternative aid policies is the study by Cable and Weale (1982) based on the Cambridge Growth Project Model. They assume that the aid budget is increased to 1 per cent of GDP throughout the 1980s and that the extra aid is tied, with export shares allocated to industries according to their 1976-80 shares of tied bilateral aid. In a balanced budget scenario, where the aid is financed by increased income tax, employment would be increased by 130,000 and GDP by 1 per cent, with no effect on the balance of payments, by 1990. In a reflationary scenario there is an increase in government borrowing but employment is expanded by 257,000 and GDP increases by 1.8 per cent, although the balance of payments deficit increases by 1.7 per cent of GDP. The authors then consider the effects of untying aid, and generally find resource costs lower than those estimated by Coverdale and Healy (1981). If aid was untied multilaterally the effects would be similar to the balanced budget scenario, given that UK export orders remain proportional to their world shares and

orders from MAAs remain proportional to contributions. A major part of the paper then considers the effects of unilateral untying, assuming a variety of trade policy responses. These results can not readily be summarised but, in general:

> All protectionism may be damaging but, in an imperfect world, the 'soft-hearted' protectionism of tied aid may be somewhat more beneficial to Britain - let alone ldcs - than the 'hardheaded' protectionist alternative of imposing import barriers against 'cheap' imports. (Cable and Weale, 1982:70)

The analysis broadly supports aid as having a positive effect on the economy, although the implicit defence of tying is predicated on the assumption that the unfavourable effects of unilateral untying would be offset by other forms of protection. The authors did not specifically consider whether tied aid is the most effective way of achieving the identified gains.

We assume that the 1986 aid budget is increased to 0.7 per cent of GNP and consider the impact of the £1160m of additional aid. The value of x_a associated with a_1 is based on two arbitrary assumptions. First, the aid is treated as untied bilateral aid with $\rho = 0.3$ and the value of UK exports realised directly is £348m. Second, we assume that 50 per cent of these exports accrue to the fertiliser and agricultural machinery industries and research/consultancy services, with the remainder going to other machinery industries, construction, railway equipment and business services (see Table 9.3). While the bulk of the aid goes to agriculture, there will be some irrigation and construction projects, rural railways and machinery for primary industries like mining, wood-processing and textiles.

The impact of a_1 is summarised in Table 9.2 and, while small, it is not politically unacceptable given that the aid should achieve development objectives (for a general defense of the effectiveness of rural development aid see Lipton, 1987). The increased output in the UK generated by this strategy will be worth about half the initial expenditure ($Q_{a1} = 0.5$) but will only generate tax payments worth 7.6 per cent of the Exchequer's outlay while the employment impact is low ($W_{a1} = 17.2$). The resulting exports would represent some 4 per cent of exports to LDCs. Such a

policy would not placate the advocates of commercial objectives, especially because so many mechanical and electrical industries would lose (relative to existing policy) a major source of orders. On the other hand, if this policy is considered as additional to the existing budget it is possible that a small sweetener, such as an increase in ATP, would meet the demands of business groups. From the development perspective, the commercial gains are more than adequate and if, as we argue later, much of impact is gross rather than net in economic terms, the policy may make a positive contribution to net global economic welfare.

Table 9.2: Impact of Alternative Aid Policies

		a_1	α_2	τ_2	a_2
a	£m	1160.0	290.0	870.0	1160.0
ρ_a		0.3	3.2	0.7	1.3
x_a	£m	348.0	928.0	609.0	1537.0
q_a	£m	599.7	1577.9	1027.4	2605.3
Q_{xa}		1.72	1.70	1.69	1.70
Q_a		0.52	5.44	1.18	2.25
w_a		19957	51059	31035	82095
W_{xa}		57.34	55.02	50.96	53.41
W_a		17.20	176.07	35.67	70.77
Tax	%	7.59	73.45	15.82	30.22
Trade	%	3.7	9.8	6.4	16.2
BoP	%	0.3	8.9	5.7	14.6

NOTES AND SOURCES: As for Table 9.1, except: a_1 is the 'Aid to the Poorest' alternative aid policy; industry distribution of aided exports given in Table 9.3; a_2 is the 'Commercial Aid' policy, comprising ATP (α_2) and tied bilateral aid (τ_2), with industry shares of aided exports given in Table 9.3.

The second policy is as commercial as we consider possible: 25 per cent of the extra aid, £290m, is allocated to ATP (this is more than five times the average annual ATP budget over 1978-86) and assumed to generate exports worth some £928m, allocated to industries according to their shares of x_α over 1978-86. The remaining £870m of aid is assumed to be a_τ with exports worth £609m, with the x_τ industry distribution. This gives an overall $\rho = 1.3$ for a_2. The impact of the additional ATP is considerable and would, assuming it is all trade-creating, increase exports to LDCs by some ten per cent of the existing level, would support 51,000 jobs (176 per £1m of ATP) and the tax revenue would cover almost 75 per cent of the government's outlay. The TBA element brings down the overall impact but a_2 could increase exports to LDCs by 16 per cent, provide 82,000 jobs and repay almost a third of the cost in increased tax revenue. If these were indeed net economic gains with trade creation, the policy would be difficult to refute provided there were benefits to recipients.

At the least, a_2 would be difficult to defend in development terms; although a_τ may well be effective, it is quite possible that so much ATP would have a negative effect on LDCs if the projects are of low or negative development value as some critics argue (see Chapter 8). The defense of, and pressure for, this policy is its significant impact. We next consider whether this would be an efficient use of government funds to achieve such objectives. It can be noted in passing that such a large increase in ATP would probably 'crowd out' non-aid contracts. That is, if LDCs were aware of the size of the ATP budget they would expect British firms to be able to obtain ATP support, and would only award contracts if they did so (this may already be true in those markets where a number of donors offer mixed credits). Similarly, any large increase in ATP increases the chances that it will be used for contracts that could have been won without aid support. Furthermore, this strategy could expect a frosty reception from other members of the DAC. Finally, the estimates assume that the additional ATP can be used to win new orders, which may not be the case: if all donors offer comparable mixed credits, the effect nets out and firms compete on prices again. If this is the case, Britain's current market share is its competitive share (trade-creation is considered in Section 9.4).

9.3. The Opportunity Costs of Commercially Oriented Aid

We interpret opportunity cost narrowly: if ıe government could obtain greater impact from some form of spending othe than aid, tied aid has a positive opportunity cost in that the money could e better spent. Since the principal commercial objective of tying is to promote xports, some form of general export subsidy may appear to be an appropriate ıternative. We do not consider this because general export subsidies are prohibitd by international agreement, notably GATT (it is largely for this reason that mixedredits are subsumed under aid rather than treated explicitly as export subsidies). Th best way to promote exports may be a devalued £Stg and lower interest rates, butuch policies are beyond the scope of our analysis (and cannot be simulated on ou IO model). The non-aid alternative policies considered are two for which the impct can easily be estimated.

The first alternative is termed the investmenopportunity cost (*VOC*) and assumes that the additional expenditure of £1160ı is allocated, as final demand, to industries in proportion to their share of demand for fixed capital formation. One could conceive of this being done through rants or investment incentives. The *VOC* is a notional estimate of the impact of aolicy to encourage investment; since our model is static we understate the true mpact. The second alternative, the government opportunity cost (GOC), assumesthat the additional money is allocated to industries according to their share in goveiment final demand. The GOC is like an across the board increase in governmentspending benefiting all industries in equal proportion to the government's demandor their output.

Table 9.3 presents the industry distribution f orders for the five policies we are comparing: aided exports due to the 1986 al budget (x_a), exports due to a_1 (x_1), exports due to a_2 (x_2), and industry shares of orders from *VOC* and *GOC*. It is clear that x_a and x_2 are the most evenly diıributed across the listed industries. This is partly because the industry list is thafor aided-exports but largely because x_1 is limited by definition, almost 60 per cet of *VOC* goes to Construction and almost three quarters of *GOC* is on MiscS sire this includes public administration (it is assumed that such expenditure doesbenefit the economy although the approach does not measure such indirect benēits).

Table 9.3: Industry Shares in Aid and Alternative Policies

	INDUSTRY	x_a	x_1	x_2	*VOC*	*GOC*
		%	%	%	%	%
1.	IPlt	6.31	-	15.46	2.0	-
2.	AMch	2.88	20.0	0.48	-	-
3.	TWMch	3.00	10.0	0.96	0.5	-
4.	PMch	5.43	-	5.97	1.0	-
5.	MCMch	11.55	10.0	11.29	1.2	0.1
6.	OMch	5.86	-	4.94	1.1	0.5
7.	OfEq	0.52	-	0.16	0.1	-
8.	IW&C	3.07	-	5.70	0.3	-
9.	ElEq	12.36	-	23.83	1.4	0.2
10.	TlEq	1.89	-	1.17	2.4	1.4
11.	ECA	0.43	-	0.20	-	0.1
12.	I&S	5.27	-	3.41	-	-
13.	Const	16.33	10.0	5.69	59.8	3.9
14.	Mot	4.92	-	3.51	8.8	0.3
15.	Ships	1.73	-	3.56	0.7	1.0
16.	OVch	3.31	10.0	5.59	0.2	-
17.	Frt	0.60	20.0	0.48	-	-
18.	Phm	1.25	-	1.03	-	2.5
19.	InstE	4.38	-	0.48	0.4	0.3
20.	Mtl	0.84	-	0.28	1.5	0.3
21.	nMMP	0.39	-	0.24	-	0.3
22.	TPRP	2.34	-	0.75	3.6	1.1
23.	BSer	1.46	10.0	1.02	5.8	1.3
24.	RSer	1.01	10.0	0.36	-	3.2
25.	MiscP	1.18	-	0.91	0.1	4.2
26.	MiscM	0.72	-	1.08	4.8	4.4
27.	FDTC	0.53	-	0.55	-	1.3
28.	MiscS	-	-	-	4.5	73.7

Notes and Sources: x_a refers to all aided exports in 1986; x_1 refers to all exports associated with a_1, similarly for x_2 in respect of a_2; *VOC* and *GOC* are fully defined in Table 9.4 below.

Table 9.4: Opportunity Cost Estimates for 'Commercial' Aid

		VOC	*VOC-a_2*	*GOC*	*GOC-a_2*
g	£m	1160.0	0.0	1160.0	0.0
q_g	£m	2089.0	-19.8%	1690.9	-35.1%
Q_g		1.8	- 0.4	1.5	- 0.7
w_g		66265	-19.3%	103084	25.6%
W_g		57.1		88.9	
Tax	%	25.0	-17.2%	25.9	-14.2%
x_g	£m	-163.4	-1395.9	-109.9	-1342.4

NOTES and SOURCES: Essentially as for Table 9.2, except: *VOC* refers to initial outlay g, government spending, being on investment demand, allocated by industry as in Table 9.3; *VOC-a_2* is the measure of opportunity cost as the difference between *VOC* and the 'Commercial Aid' policy, generally expressed as a percentage of a_2; similarly for *GOC*, save initial outlay g is government spending on final demand by industry as in Table 9.3. Output, employment and tax are expressed relative to g; x_g is the net exports which, since gross exports are zero, is the value of imported inputs required to produce q_g, and the difference is relative to net exports that would have resulted from aid.

Any allocation of public funds will benefit some groups rather than others, in this case industries, and one of the selection criteria must be in terms of the ultimate objectives. Thus to maximise employment, allocate funds to employment intensive industries; to maximise exports, support major exporters. However, the final appraisal should also consider the effects on the rest of the economy.

The results of the *OC* estimates are presented and compared to a_2 in Table 9.4. The obvious conclusion is that the impact of a_2 is greater than if the money went on investment or government spending, with the exception that *GOC* has a greater employment potential (arising because the public sector is labour intensive). Not spending the money on aid generates a cost in lost exports which, combined with

the increased demand for imports, means that either *VOC* or *GOC* could have added about 16 per cent (£1.35b) to the visible trade deficit in 1986 relative to the same money being spent on a 'commercial' aid budget. The less commercial is aid policy the smaller will be the deviations measured, as the reader can easily determine using our earlier results. Compared to these other forms of spending, tied aid generates greater commercial benefits, except in respect of employment. The *VOC* was the weakest, generating 20 per cent less output and employment than a_2 and 17 per cent less in tax revenue while adding the equivalent of two per cent to the visible trade deficit.

Since the Byatt Report, the employment potential of export subsidies has been debated. Byatt (1984) argued that the potential for export subsidies to generate exports that could not otherwise be won or to generate follow-on orders was quite limited, ie. the trade-creating potential was seen as very limited. Consequently, the Report argued: "Supported employment is assumed to last the life of the project and after this the level of employment is lower than if the project had not been undertaken until all those who had been employed on it are again re-employed." (Byatt, 1984:174). The implied cost-per-job depended on the assumed length of time before the workers were re-employed. Assuming that all exports due to ATP were additional, Byatt's cost-per-job estimates in 1982 prices ranged from £33,000 (assuming full re-employment would take 10 years) to £132,000 (re-employment after 3 years). These estimates took no account of output multipliers, and we divided them by $Q_{x\alpha} = 1.79$ (Table 9.1) to allow for indirect employment. Table 9.5 updates the estimates to 1986 prices and includes figures for the cost-per-job of employment-creation measures cited by Byatt. Table 9.5 only includes the lowest (£33,000) Byatt figure for ATP, adjusted as outlined above, because we claim only to estimate the level of employment supported (how many person-years were required irrespective of whether they were new). We address the distinction between the potential to *support* employment rather than *create* new employment, which is far from semantic and has implications for a more general interpretation of opportunity costs to which we turn at the end of this section.

Table 9.5: Alternative Cost-per-job Estimates for 1986

SOURCE	Range of Estimates		
	£	£	£
HSPE (1986)	4500		7600
Love&Dunlop (1990)	2773		8319
Byatt (1984)	4500	8000	21000
Table 9.1	8410	17961	53793
Table 9.4	11253		17505

NOTES: SOURCES as indicated, but figures, all in 1986 prices, have been adjusted for comparison: HSPE ranges are simply the £11.8m of ATP divided by their upper and lower total employment estimates; Love and Dunlop (1990) lower estimate is their figure, upper estimate is three times this to reflect fact that only one of the three projects included in the total employment estimate was supported by ATP; for Byatt (1984) the two lower bounds are the given range of costs for special employment measures, the upper bound is the lowest cost-per-job for ATP estimate given by Byatt, all figures originally in 1982 prices have been revised to 1986 prices using the manufacturing industry wage index (*Economic Trends Annual Supplement*, 1988:115). The range for Table 9.1 refers to ATP, multilateral and bilateral aid respectively; the range for Table 9.4 refers to *GOC* and *VOC* respectively. See text for elaboration.

Byatt (1984) can be taken as the official line against export subsidies and business groups have consistently tried to argue that the estimates are far too low. An early response was Morris (1984) who argued that Byatt under-stated the trade-creation potential and over estimated the employment costs. Morris cited NEDO estimates of cost-per-job ranging from £1,500 to £10,000 but offered no source nor explanation of their derivation and, furthermore, concentrated more on the issue of export credit subsidies (subsidised interest rates) than ATP. Consequently, we do not cite the Morris estimates. Some company case studies estimated employment, from which estimates of cost-per-job could be derived, as for HSPE (1986).

As mentioned in Chapter 8, Love and Dunlop (1990) include three projects in their study although only one required ATP support; while their study is rigorous and we accept that all three projects may have been won as a package with an ATP element, generalising from this atypical case to the impact of ATP as a subsidy is, in our opinion, inaccurate and seriously overstates the potential of ATP. We include their estimate of £2,773 but also derive an upper bound of £8,319 which should be more representative of typical ATP projects and is, indeed, almost identical to our own cost-per-job estimate for ATP at £8,410, and also close to the HSPE upper bound. In conclusion, the cost-per-job supported by ATP was some £8,000 in 1986, similar to estimated costs for general employment support schemes (Byatt, 1984:175). Other forms of aided-exports or final demand would have had a higher cost, because they did not have as high an export ratio.

While this appears to be ammunition for the business lobby it should be emphasised that impact analysis, even when displacement is incorporated, does not imply employment-creation. The IO method can estimate the level of employment associated with a given level of output distributed across certain industries, and it can link that output to an industry distribution of exports, but it cannot identify what would have happened in the absence of the initial injection. Companies will claim that they need ATP and/or tied aid to win orders because of support to other donors, and will publicise any obvious cases of follow-on orders, but this does not mean the subsidies are net trade-creating. If the companies were not exporting, they may meet domestic demand; if they cannot win sufficient exports without a subsidy, perhaps they are uncompetitive.

May, Schumacher and Malek (1989) estimated the employment impact of UK aid in some detail but not, unfortunately, in a way comparable with the estimates presented here. They attributed a total of 38,000 UK jobs to world-wide aid in 1984, equivalent to a cost-per-job of £23,233 in 1986 prices, which compares favourably with our implied figure of £25,370 for the total UK aid budget (Table 9.1). Of greater relevance, they argue that aided-exports overall have a lower employment potential than other components of final demand, ie. "If aid

expenditure is financed through cutting back a similar amount in each of the categories of final demand the net employment impact in *all* cases would be negative." (May, Schumacher and Malek, 1989:218). This differs from our conclusion in Table 9.4 because by focusing on the most commercial aid we estimate an upper bound of employment potential. Nevertheless, we concur that export subsidies are not an efficient means for employment creation.

9.4. Aid and Export Competition

Tied aid in principle is not defensible in strategic terms because it is a distortion of aid, and should be evaluated as such, rather than an instrument of trade policy. Tied aid reduces choice and generally increases prices to recipients relative to untied aid, but may still be preferable to no, or less, aid. If aid is going to be tied, the STP argument has relevance in indicating which industries should benefit. Introducing tying to relatively competitive markets is an unambiguous distortion but in imperfect markets tying may exhibit redeeming features. The arguments for targeting industries can be applied to tied aid as a 100 per cent export subsidy and the question becomes, in an imperfect world, is it better to support some industries rather than others?

We summarise the characteristics of industries which could most appropriately be targeted for export subsidies, through mixed credits or tied aid, to remind the reader. First, the international market must be oligopolistic and highly concentrated with firms earning monopoly rents. Second, domestic and global barriers to entry should be high, preferably due to inflexible capital-intensive inputs and high R&D expenditure. Third, the domestic industry should exhibit economies of scale, preferably with a cost advantage over foreign firms, and external economies, especially due to technology-intensity. Fourth, the domestic industry should not be intensive in the use of scarce factors. Finally, the subsidy should not be matched by rivals nor should it encourage rent-seeking by domestic exporters. Under such imperfect competition, a subsidy may enable a domestic firm to penetrate new markets *so that subsequent orders can be won without subsidy*. In this situation a temporary subsidy may be of a net economic benefit to the domestic, and global, economy. If some aid is to be tied, then it is best that it is targeted on those

industries where there is scope to switch profits from foreign rivals and generate external and scale economies, especially if the aid is in the form of mixed credits.

The fundamental aspect of the strategic argument, as for the opportunity cost arguments, is that the subsidy is required to generate new exports which can then be sustained without a subsidy. If this basic condition is not met, and the STP criteria are necessary but not sufficient for this, then the subsidy is a redistribution from taxpayers to firms which permits increased profits but distorts the global and domestic allocation of resources. There is no economic benefit from a subsidy, in terms of efficiency and welfare, unless there is demonstrably highly imperfect competition in the relevant international market.

The procedure here will be to examine the relationships between the patterns of aid-supported exports by industry and some indicators of industry export performance and structure (as used in Chapter 7). This is a first-step towards an empirical analysis and the data are incomplete or inadequate in many respects. Nonetheless, we feel the data series used are indicative, the most regretable omission being that we have no data on changes over time in the amount of aid support going to various industries. The notation and data series used should by now be familiar. Total aid-supported exports, x_{ai}, are here measured as industry share of exports supported by each type of aid, in percentage terms.[1]

The variables are interpreted as measures of industry export potential: x_{ai}/e_i indicates the importance of aid to industry exports; e_i/q_i the export-orientation of the industry and e_i/e the industry's export importance. These series were calculated for 1984 and we also measured the change from 1979, giving $\Delta(e_i/q_i)$ and $\Delta(e_i/e)$ respectively, in percentage points, which are indicators of export performance. Our data, unfortunately, do not permit direct inferences regarding the effect of aid-support on export performance over time, because we have no estimate

1 The notation does not distinguish industry shares in volume terms from percentage shares because the statistical analysis employed is non-parametric, thus based on the rankings of industries which are the same in each case.

of lagged aid-support. We cannot be certain that export performance in the period examined was unrelated to aid prior to the period examined.

In addition to trade and aid variables, we include three series of structural variables. The first is industry employment potential, W_i, and given the emphasis placed on this we expect aid to go in greater amounts to industries with a high employment potential. The second measure is CR_5, the share of sales of the five largest firms, and aid should be more likely to go to concentrated industries (both because they are more likely to meet STP criteria and because they may be politically more influential). Finally, the output multiplier, O_i, measures the linkages of an industry with other industries. The higher it is, the greater the spillover effect of demand for one product on the output of the rest of the economy, thus the more likely is the industry to meet STP criteria for external economies.

Although the data series are nominally parametric the aided-exports are estimated and the structural series are proxies. Consequently, greater reliance can be attached to the ranking of industries within series than to the actual values and differences, and for this reason we use a non-parametric test to assess the relationship between series. The Spearman rank correlation (*SRC*) measures the correlation between the ordering of one series with that of another, and this is the statistical measure used to assess the relationship between aided-exports, trade and structural variables. Rather than reproduce the raw data we present only the *SRC* values.[2]

Table 9.6 presents the results for exports attributable to all three types of aid, x_{ai}, and we only discuss those *SRC* with a significance level (*Sig*) below 0.500, ie. those cases where the probability of observing the *SRC* shown if the series were independent is less than 0.5, implying that the relationship is significant. The correlation between shares of aided-exports, x_{ai}, and their importance to industries, x_{ai}/e_i, is quite high so that aid is roughly in line with export volumes. Of greater importance, however, are the negative correlations between the importance of aid and the trade variables: x_{ai}/e_i tends to be greater for industries

2 The raw data can be found in either Appendix A or Appendix B; the sample used is N=21, industries 1 to 21 in Table A.1, for which all variables were available.

that are not strongly export-oriented and that have experienced a deteriorating export performance. This must be qualified because we are unable to identify the LDC sub-markets within industry exports. On the other hand, the observation is not surprising: if industry export performance is deteriorating, then aid will assume greater importance.

Table 9.6: Correlations for All Aid, Exports and Structure

		[1] x_{ai}	[2] x_{ai}/e_i	[3] e_i/q_i	[4] $\Delta(e_i/q_i)$	[5] e_i/e	[6] $\Delta(e_i/e)$
[2]	*SRC*	0.597		-0.243	-0.404	-0.697	-0.325
	Sig	.004		.289	.069	.000	.151
[3]	*SRC*	0.177			0.736	0.512	0.203
	Sig	.444			.000	.018	.378
[4]	*SRC*	0.082				0.721	0.491
	Sig	.724				.000	.024
[5]	*SRC*	0.062					0.147
	Sig	.788					.526
[6]	*SRC*	-0.523					
	Sig	.015					
W_i	*SRC*	0.378	0.446	0.004	-0.103	-0.344	-0.279
	Sig	.091	.043	.987	.658	.127	.221
CR_5	*SRC*	-0.203	0.002	-0.061	-0.040	0.022	0.149
	Sig	.377	.993	.794	.862	.926	.519
O_i	*SRC*	0.070	0.053	-0.335	-0.230	0.038	-0.490
	Sig	.763	.819	.138	.316	.871	.024

NOTES: The variables are defined in the text.

SOURCES: Aid data are own calculations utilising the UK IOt Tables for 1979 and 1984; W_i and CR_5 are from the 1985 Census of Industrial Production.

Aided-export shares are weakly but positively related to export-orientation. The export series themselves are positively and often strongly related; obviously, industries whose export performance improved are likely to be more export-oriented. In contrast, industries whose share of total exports grew fastest are not significantly correlated with major exporting industries, suggesting that growth was fastest in relatively small (but export-oriented) industries which derived relatively little benefit from aid, being negatively correlated with both x_{ai} and x_{ai}/e_i. Overall, aided-exports are of greater importance to industries with a lower, and deteriorating, export performance but do not necessarily go in greater amounts to them. This is more consistent with claims that aid is used to assist uncompetitive industries than with the counter-claims that aid helps firms to penetrate new markets and expand. The data offer no support to the argument that aid promotes export growth in general, though the argument may still hold in specific markets.

The structural variables are generally weakly correlated with the others. As expected, aided-exports are more likely to go to industries with high employment potential which are also industries of lower overall export performance, perhaps because they are relatively labour-intensive. However, this goes against strategic criteria both in favouring labour- rather than technology-intensive industries and because it may put an upward pressure on domestic wage rates (especially given that engineering Trade Unions tend to be relatively powerful). Concentration is negatively correlated with x_{ai}, which is largely because domestic production in engineering has low concentration whereas only a few of the larger firms are involved in LDCs, but is generally insignificant. The negative correlation between O_i and export variables can be explained by high linkages representing a domestic-orientation. From a strategic perspective, there is no tendency for aid to go to the industries on which it should be targeted. We can elaborate these issues for the different types of aid.

Table 9.7 presents a comparable set of correlations for exports attributable to tied bilateral aid (x_{ti}); O_i and CR_5 are not discussed because, while positive, the correlations are insignificant. The conclusions for aid in general are even stronger

for the case of tied bilateral aid: the shares and importance of $x_{\tau i}$ are positively correlated with employment potential and negatively correlated with export variables. Tied bilateral aid is more likely than aid in general to go to industries with a poor and deteriorating export performance and importance. This is consistent with claims the the LDC projects market has become increasingly tight and competitive, especially during the recession of the early 1980s and the subsequent debt crisis, and aid support may do no more than offset the severity of a trend decline. There is no tendency for the benefiting industries to meet the strategic criteria, while the significance of employment is difficult to interpret clearly - it could be a proxy for political pressure but can also be a factor in poor export performance (ie. industries with high employment have high wage costs and are less competitive).

Table 9.7: Correlations for TBA, Exports and Structure

		[1] $x_{\tau i}$	[2] $x_{\tau i}/e_i$	[3] e_i/q_i	[4] $\Delta(e_i/q_i)$	[5] e_i/e	[6] $\Delta(e_i/e)$
[1]	*SRC*		0.737	-0.115	-0.251	-0.112	-0.613
	Sig		.000	.620	.272	.630	.003
[2]	*SRC*			-0.427	-0.580	-0.668	-0.427
	Sig			.054	.006	.001	.054
W_i	*SRC*	0.376	0.320				
	Sig	.093	.158				
CR_5	*SRC*	0.029	0.152				
	Sig	.902	.510				
O_i	*SRC*	0.095	0.052				
	Sig	.683	.823				

NOTES and SOURCES: As for Table 9.6 except: [1], industry share of exports supported by TBA; [2], TBA-supported exports as share of total industry exports.

Table 9.8: Correlations for Multilateral Aid, Exports and Structure

		[1] $x_{\mu i}$	[2] $x_{\mu i}/e_i$	[3] e_i/q_i	[4] $\Delta(e_i/q_i)$	[5] e_i/e	[6] $\Delta(e_i/e)$
[1]	*SRC*		0.539	0.385	0.296	0.219	-0.431
	Sig		.012	.085	.192	.340	.051
[2]	*SRC*			-0.117	-0.314	-0.601	-0.400
	Sig			.614	.165	.004	.072
W_i	*SRC*	0.239	0.260				
	Sig	.297	.256				
CR_5	*SRC*	-0.229	-0.118				
	Sig	.318	.611				
O_i	*SRC*	0.092	0.152				
	Sig	.693	.511				

NOTES and SOURCES: As for Table 9.6 except: [1], industry shares in multilateral aid funded exports; [2], exports in [1] as a percentage of total industry exports.

Table 9.8 presents the correlations for exports financed by MAAs ($x_{\mu i}$) and, since such contracts are open to international tender, can be interpreted as the control group. Because the volume of $x_{\mu i}$ is by far the greater share of the total, at least for the period in question (it was 62 per cent, compared to 18 per cent for $x_{\tau i}$ and 20 per cent for $x_{\alpha i}$), it is the major weight in the statistics and other types are best interpreted in comparison. The correlation between $x_{\mu i}$ and export-orientation is positive, unlike for $x_{\tau i}$, which suggests that export-oriented industries do attract a greater share of multilateral aid, consistent with the international competitive tenders, although the orders are more important to the weaker exporters. This demonstrates that industry shares, rather than the importance, of aided-exports is the important factor in deciding if aid is more likely to go to strong exporters, which is clearly the case for $x_{\mu i}$ but not for $x_{\tau i}$ reinforcing the argument that TBA

appears to assist industries whose export markets are threatened rather than support expanding and internationally competitive exporters (the results in Table 9.7 offer no support to the claim that tied aid is trade-creating). The relationship with employment is positive in Table 9.8 but lower than for TBA, while $x_{\mu i}$ tend to be lower in concentrated industries, following the result for Table 9.6. The observation that TBA is if anything positively correlated with concentration is consistent with STP but also suggestive of rent-seeking.

Table 9.9: Correlations for ATP, Exports and Structure

		[1] $x_{\alpha i}$	[2] $x_{\alpha i}/e_i$	[3] e_i/q_i	[4] $\Delta(e_i/q_i)$	[5] e_i/e	[6] $\Delta(e_i/e)$
[1]	*SRC*		0.980	-0.087	-0.131	-0.251	-0.280
	Sig		.000	.709	.571	.273	.218
[2]	*SRC*			-0.175	-0.241	-0.357	-0.256
	Sig			.449	.292	.113	.263
W_i	*SRC*	0.566	0.569				
	Sig	.007	.007				
CR_5	*SRC*	-0.098	-0.009				
	Sig	.673	.969				
O_i	*SRC*	-0.081	-0.131				
	Sig	.727	.573				

NOTES and SOURCES: As for Table 9.6 except: [1], percentage share of industries in ATP-supported exports; [2], ATP-supported exports as a percentage of total industry exports

The correlations for ATP and export variables are in Table 9.9, and conform to the general trends already observed. ATP is more heavily concentrated in a few firms than are other types of aid, hence the correlation between $x_{\alpha i}$ and $x_{\alpha i}/e_i$ is almost

perfect. Interestingly, while also negative the correlations of ATP shares and $x_{\alpha i}/e_i$ with export variables are less significant than for TBA, especially in respect of export performance. Furthermore, the correlation between $x_{\alpha i}/e_i$ and export performance is even lower than that for multilateral aid. Those winning ATP-exports appear to be stronger exporters than those winning orders from TBA, while those for which $x_{\alpha i}$ are of greatest importance seem to be stronger exporters than those for whom aided-exports in general are important. The most simple interpretation is that ATP is indeed more appropriately related to trade policy than aid policy, but it remains the case that correlations between $x_{\alpha i}$ and export indicators are all negative, if not always significant. No firm conclusion is possible, and one area for future research is to compile a comparable data set for industry exports to LDCs only, ideally over time. However, the data do not support claims that ATP is export-creating. Like other types of aid and as discussed in Chapter 8, ATP tends to go to relatively high employment industries.

9.5. Choosing a UK Aid Strategy

The measurement of impact demonstrates that there are good reasons for business interests to advocate tied aid, and good (political and commercial self-interested) reasons for the government to listen and agree. It is imperative that those promoting aid for development be aware of the scale of potential commercial benefits, in a phrase, 'to know what they are up against'. Political economy considerations indicate that aid must confer commercial benefits, but it would be nice to know what level of impact the government desires (in general, business interests want maximum impact; because they have other objectives, the government would accept somewhat less). The issue then becomes how best to structure aid policy so that it is as effective as possible in promoting development, given an impact constraint and implicit political objectives. We consider this in Chapter 10.

The root objection to tied aid is that it distorts the prices to LDCs. Although the full subsidy is a resource which reduces the cost of goods to recipients, the price of goods under tied aid will tend to exceed the international competitive price so that there is inefficient resource allocation, which is the true cost in terms of global

welfare. If the relevant international market is sufficiently oligopolistic the welfare cost of tying may be less, because the world price will include monopoly rents, depending on how competitive the domestic industry is relative to the world market, ie. how great is the mark-up element in tied aid prices relative to the monopoly rents element in world prices. This is difficult to disentangle without formal analysis, but suggests that strategic trade arguments can be applied to tied aid.

Although the transfer element is always less in mixed credits they may be preferable to tied aid on efficiency grounds if the relevant markets are Cournot oligopolistic. In contrast to tied aid, the price of goods under mixed credits can be less than prevailing world prices because the subsidy displaces some of the monopoly rent element in world prices. The recipient pays less than it would have to pay in the absence of a subsidy, while the profits of domestic firms increase at the expense of foreign competitors. The extent to which mixed credits displace aid funds is a separate issue of relevance to the transfer element but not the resource costs. Since requests for ATP are initiated by companies, they seem to relate directly to export competition. It is highly likely, although it has not been demonstrated, that some orders would not have been won without subsidies; this is consistent with a market where prices are flexible and subsidies are used to support firm's quantity decisions, ie. Cournot oligopoly.

The distribution of aided-exports overall offers little evidence that industries meeting STP criteria have been targeted. Aided-exports are of greater importance to industries with a lower, and deteriorating, export performance but do not necessarily go in greater amounts to them, and are more likely to go to industries with high employment potential. This goes against strategic criteria both in favouring labour- rather than technology-intensive industries and because it may put an upward pressure on domestic wage rates. Furthermore, there is no evidence that the industries benefiting from aided exports exhibit significant external economies, so that some of their gain from the subsidy could be passed on to the rest of the economy. Consequently, the industries do not obviously meet the STP criteria and their potential to generate a net economic gain must be questioned.

Tied bilateral aid is more likely than aid in general to go to industries with a poor and deteriorating export performance and importance, supporting the argument that TBA is assistance to industries whose export markets are threatened rather than support for expanding and internationally competitive exporters. It appears that more export-oriented industries attract a greater share of multilateral aid, but again there is no evidence that the industries have particularly high entry barriers or sunk costs (R&D, inflexible capital inputs or bidding costs). The relevant industries may be oligopolistic, but not so obviously as to provide a strategic rationale for export subsidies.

Strategically, the underlying rationale for matching subsidies is retaliation, a tit-for-tat strategy to deter others from continuing their subsidies. There is a little evidence that retaliatory mixed credits have reduced their usage; the total value of donor funds allocated has fallen since the early 1980s, and the DAC continues to try and negotiate further reductions and restrictions. Our conclusion is that tying and mixed credits have been introduced, and are likely to persist, because of the domestic political economy of aid policy. It is not that the government believes that it should assist exporters - the Thatcher regime holds the opposite view - but rather that they are inclined towards the transfer principle (they do not believe in giving money away for no obvious return). The government, like business, tends to treat the gross commercial benefits to the UK as equivalent to economic gains, and only occassionally enquires about the net economic effects. Our analysis suggests that these net economic effects are not necesarily positive so that, given the detrimental implications of tying for recipients, the effect of tied aid and mixed credits on global welfare is quite likely to be negative.

CHAPTER 10. SUMMARY AND CONCLUSION

We have tried to illuminate the influence of the business lobby in British aid policy by examining the arguments of that lobby, especially in respect of demands for tied aid, and assessing the extent to which these have been reflected in trends in the UK aid budget over the decade 1978 to 1988. The central point has been that the benefits to business are determined largely by the impact of aid, the extent to which British exports are aid financed and the distribution of such exports across industries and firms. To this end, much of the thesis has concentrated on estimating the impact of different types of UK aid, allowing us to identify which industries, and in some cases firms, benefit and to indicate the importance of aided exports to them. In this way we have been able to link the businesses which benefit to those which lobby the government on aid; the success of their lobbying is reflected by the trend in impact and its distribution. This is summarised in Section 10.1.

A second theme of the thesis is that impact, at best, only measures the commercial benefits from aid. This is important because it can be related directly to the business lobby, as indicated above, and because impact provides a first approximation of the effects of aid. In particular, measuring impact is central to our critical evaluation of the arguments for tied aid. The economic growth and development arguments for aid, as outlined in Chapter 2, generally condemn tying as being against the interests of aid recipients. Tying distorts the market in aid-financed goods and thereby fails to maximise global welfare; it also constrains the choices open to LDCs and can engender dependency on often inappropriate, or less than optimal, Western technology. Nevertheless, tying is prevalent among all major bilateral donors and we seek to explain why, at least in the case of Britain.

The basic argument for tying is that aid is a resource cost to donors that can be offset to the extent that it finances exports; rather than aid being a direct transfer from donor taxpayers to LDCs, tying renders aid an indirect transfer from donor taxpayers to donor exporters. This imposes a cost on recipients, relative to untied aid, and may impose a cost on donors; the issues relating to the net effects of aid, and how tying affects these, are discussed in Section 10.2. An implicit claim for

tied aid is that, by definition, it maximises the export ratio of aid; we will question this claim and suggest that tying tends to benefit the relatively less competitive exporters and amounts to an effective subsidy to inefficient firms. This is unlikely to be supported by the taxpayers who vote for aid, nor is tying likely to be supported on the basis of net global welfare. These issues are all summarised in Section 10.2, which also considers strategic criteria.

In elaborating the issues relating to measuring the net economic effects of aid and the net effect on global welfare, we will identify many important questions which are not answered in the the thesis. These questions, which provide scope for further research, are set out in Section 10.3. It is to be anticipated that a thesis will throw up unanswered questions, partly because any study must necessarily limit its scope but also because often one set of questions have to be answered before the next set can be fully identified. Had we not answered some questions we would not have known what others to ask.

10.1. Business Interests and Trends in the Impact of Aid

Limiting attention, in the first instance, to the simple impact of aid, we can summarise the basic results of our empirical analysis in respect of the three principal forms of aid with direct commercial implications. Since ATP is an export subsidy the ratio of exports to aid is high, 3.2 over 1978-86, and the average output multiplier (the ratio of domestic production required to meet aided exports to the initial aid) was 5.66 over 1978-86. For multilateral and tied bilateral aid we use the average of the estimated output multipliers for 1980 and 1985, giving values of 1.85 and 1.17 respectively. Multilateral aid has the higher multiplier because its export ratio is above unity; the value of MAA contracts exceeds the value of donor contributions and UK firms tend to be successful in winning MAA orders. The export ratio for TBA is less than unity because of allowance for local costs. The multipliers incorporate both the likely value of exports per £1m of aid, and the share going to different industries, and gives the value of total output required in the economy to meet the exports generated. Since TBA excludes items such as technical cooperation and the multipliers exclude spare part or follow-on orders, the figures can be treated as lower bound estimates.

In citing the commercial benefits of aid, the business lobby and a number of analysts have emphasised the employment potential of the output generated (see Chapter 9). On face value, each £1m of ATP could have supported 122 jobs in 1986, each £1m of TBA could have supported 34 jobs and of multilateral aid 56 (Table 9.1). However, as we have argued, the method of impact analysis cannot claim that employment was *created* by aided exports and tied aid is not an efficient policy if employment creation is the specific objective. Two conclusions from the thesis are relevant here. First, while the commercial benefits from tied aid appear great, tying itself is not an optimum means to achieve these gains. Second, the commercial gains to the UK from multilateral aid exceed those from tied bilateral aid, and from bilateral aid in general.

The basic question we wish to answer is, using impact as the measure of commercial benefit, has the business lobby been successful in influencing Britsih aid policy over the last decade? The final column of Table 10.1 gives an order of magnitude for the impact of UK aid in each year on the assumption that each type of aid had the same multiplier over the entire period. This assumption is necessary because there are no data to permit the estimation of annual multipliers for each type of aid. The breakdown of aid in the other columns is not comparable to the figures in Chapter 4 because it is based on figures for gross aid in 1985 prices using a Retail Price Index deflator; this is deemed appropriate because we wish to indicate the magnitude of real impact for firms (1985 prices are used because they relate more closely to the period of our impact estimates).

The estimated total impact is the sum of the impact for three types of aid we are able to distinguish. The 30 per cent fall in real impact over 1978-88 exceeds the fall of 18 per cent in real aid; between 1979 and 1987 the real value of impact was almost halved while real aid fell by a third. A large part of the fall in the real value of impact is explained by the fall in the value of aid; since multilateral aid held roughly its share of the budget its impact fell at a rate only slightly exceeding the fall in real aid. The significant fall in TBA suggests that ATP was conceded at a cost in terms of reduced tied project aid.

Table 10.1: Potential Impact of British Aid, 1978-88

		Share of Impact Due to:			
	Gross aid £m	Multi-lateral %	Bilateral Tied %	ATP %	Potential Impact £m
1978	1576.7	63.4	36.6	-	1807.0
1979	1765.8	60.9	26.9	12.2	2239.6
1980	1221.4	50.1	33.8	16.2	1183.3
1981	1489.3	53.6	30.8	15.6	1502.2
1982	1260.2	56.4	17.1	26.5	1564.9
1983	1301.6	68.1	17.6	14.3	1445.8
1984	1395.6	65.8	14.5	19.7	1583.4
1985	1309.6	65.8	17.1	17.1	1374.0
1986	1304.4	57.2	16.1	26.7	1594.8
1987	1197.4	72.0	15.7	12.2	1238.3
1988	1446.8	67.8	14.6	17.6	1570.1
1979-88	-18.1%	6.9	-12.3	5.4	-29.9%

NOTES: Initial impact estimates were calculated in current prices; Gross aid and potential impact are expressed in 1985 prices using the retail price index (Q3 Total non-Food, *Economic Trends Annual Supplement*, 1989:131). Potential impact is based on applying the aggregate output multiplier for each type of aid in each year (ie. there are no assumed impact lags).

While the share of tied aid fell, the commercial benefits per £1m of tied aid may have risen because ATP yields far greater benefits than TBA. Over 1978-84, each £1m of tied project aid (non-ATP) generated about £0.7m of UK exports whereas each £1m of ATP generated some £3.2m of exports. In this sense, each £1m of ATP has the commercial value of some £4.6m of TBA. The implied trade-off is that a percentage point increase in the share of ATP would compensate for a 4.6

percentage point fall in the share of TBA. A positive net trade-off would imply that business as a whole benefited from the introduction of ATP; although the evaluation of the trade-off depends on the specific period chosen, it tended to be negative. The 3.4 per cent share of ATP in 1988 could be seen as compensating for a 15.6 percentage point fall in TBA over 1978-88 (ie. since the introduction of ATP); the actual fall of 22.3 points is well in excess of this indicating that business as a whole lost in the implied trade-off. A similar conclusion holds for the period 1979-88. Between 1979 and 1982, however, ATP's share of the budget rose 3.1 percentage points while tied project aid fell by 11 points whereas 'parity' would have been maintained by a 14.3 point fall. An end date of 1986 also suggests a net increase in commercial benefits. Business groups were apparently successful in getting ATP introduced in 1978 and increased in 1980, but the benefits have been offset, perhaps more than offset, by the large fall in tied project aid. It would seem that ATP was a pyrrhic victory for the business lobby; closer examination indicates, however, that the switch towards ATP favoured a small group of firms, as identified in Chapter 8.

It is only to be expected that, being a relatively small budget, ATP is more concentrated than TBA; however, this would not be so pronounced if consultants and medium sized firms got as much assistance as they would like. The important conclusions about ATP are that it is an export subsidy that is less likely than normal aid to meet development objectives, is more likely to go to richer LDCs and is heavily biased towards large firms. The apparent shift from TBA to ATP has benefited large insider firms, who used direct contacts with decision-makers to lobby for ATP, at the possible expense of less well connected companies who faced a smaller fund of tied bilateral aid. This conclusion is consistent with the argument that ATP has encouraged rent-seeking activity among large exporters to avail of the existing export subsidy, which undermines its strategic value.

It seems plausible to argue that ATP has been used to provide the commercial benefits of aid, which have consequently become more concentrated on a few firms, while the bilateral budget has been deployed with development objectives in mind, so that the level of tying has been reduced and a greater share is allocated to

natural resources and the poorest countries. The UK gave a greater share of its aid to the poorest LDCs than did any of the other major donors, by a considerable margin, and the share of bilateral aid going to the fifty poorest LDCs rose from 62 per cent in 1985 to 68 per cent in 1987.

In Morrissey (1990b) we outlined a perception that the aid budget had been commercialised throughout the 1980s. This belief was justified by the introduction and expansion of ATP and the adoption of a very commercial rhetoric on the part of Ministers for Overses Development during the period (see Chapter 4). On the basis of the evidence on impact just reviewed, it is the rhetoric on aid that has been commercialised, not the aid budget itself. The business lobby demanded more tied aid to match other donors but the government was committed to cutting spending and neither aid nor subsidies were part of its ideological baggage. So the budget was cut, severely. Business *does* have an important position in society, it *is* consulted on policy and its views cannot be ignored completely. The government made repeated statements to reassure business that it was aware of their problems and on their side; greater co-operation from the DTI, and ODA, reinforced this. Nonetheless, although a few firms benefited from ATP, the business lobby failed to get its primary, broad, interests enshrined in the aid budget, despite a rhetoric of government aid policy supportive of commercial interests; there is little evidence that business exercised influence on this issue (which is not to deny that it may have influence on other issues).

Donors do define aid criteria in terms reflecting business interests; development means economic growth, successful projects are those profitable in terms of internal rates of return, and aid as a real resource outflow begs the promotion of donor exports. Aid is structured to benefit donor exporters more than if development interests were paramount. British business has gained from this general philosophy of aid but has not been successful in getting as much support from the UK government as foreign businesses get from theirs.

Business groups are aware that they are unlikely to be able to alter government philosophy or its chosen strategy. They can however, try to alter the tactics employed to meet this strategy, by seeking marginal changes to policy. The large

insider firms were able to present a coherent view and identify visible costs and benefits in support of ATP, which was introduced and developed to favour large exporters; smaller firms need more initial help with identifying projects and it became more difficult for consultants to benefit when the 100 per cent financing was halved. In effect, ATP sheltered a number of large firms from the commercial costs of the reduced budget; insider status was not the only factor explaining why they were sheltered: the international markets where matching mixed credits are required tend to be for capital-intensive projects which require large contractors; only large firms can maintain the local contacts to operate in LDCs; large projects are easier to administer and are of high visibility for political purposes.

There are implications for the effectiveness of aid in promoting the interests of developing countries, although these are obviously tentative given the framework of our analysis. Unambiguously, the decline in the real value of British aid has not furthered the interests of LDCs, nor has the introduction of ATP (relative to using the same money to finance other types of aid projects, preferably untied). The tendency of the share of multilateral aid to rise relative to TBA has probably benefited the UK and may well have benefited LDCs, but one cannot draw clear conclusions about the relative effectiveness of multilateral and tied bilateral aid. While the increasing share of aid going to the poorest countries appears to be a desirable shift, it may not be so; one needs to know the types of projects to which the aid is allocated. It is possible that the same countries are recieving the aid but that they have become relatively poorer (due to the ineffectiveness of previous aid?). On balance, we feel that the ability of the UK aid budget to promote development objectives has deteriorated over the last decade.

This study suggests that the business lobby has had only a limited influence on the Thatcher governments, at least in respect of the aid budget; firms are expected to compete as if there were a free market, despite evidence of distortions introduced by other donors. International and internal political interests, notably public expenditure restraint, have been the predominant determinants of the aid budget, and the changes since 1979 offer little evidence that either the business or development lobbies have had much influence. There has been a commercialisation

of the rhetoric of government aid policy but no real substance behind their words; British business has been unable to exert the influence required to elicit a real increase in tied aid. The major exporters elicited some support through ATP, but there is a strong suggestion that this was grudgingly granted because of the extensive mixed credits offered by other donors. Neither the business nor the development lobbies can derive much satisfaction out of recent UK aid budgets.

Our study also offers some implications for the strategies that the development lobby should adopt in trying to influence the Government. The first clear point is to acknowledge that while development and business interests are in general conflict, both share the objective of increasing the real volume of aid. It seems likley that the increase in the volume of UK aid in the late 1980s reflects the activities of both lobbies since the mid-80s. The second point is that this study offers ammunition to the development lobby insofar as we show that tying is neither necessary nor sufficient to generate commercial benefits to the UK. In particular, both lobbies could also share the objective of multilateral untying, although it is clear that the business lobby would not adopt this argument easily (because certain influential firms may lose from such a change while the gainers are likely to be those who are already internationally successful and therefore less vocal regarding the aid budget). The weakness of the commercial argument, however, can be revealed by showing that commercial gains are not a measure of, and may in fact disguise the true absence of, economic benefits, as we discuss in Section 10.2. This weakness can be exploited, politically, by making voters aware that aid does not represent a transfer to poor people in LDCs but, rather, to shareholders in exporting firms.

10.2. Measuring the Net Effects of Aid

There are a multitude of ways in which aid can benefit donor economies, aside from the international and domestic political and humanitarian motives for aid. Attention here has been confined to commercial benefits which arise if aid increases donor exports. If aid contributes to the economic growth of recipients it will, in time, provide new export markets for donor economies; while some donor industries will suffer from increased competition from developing countries, this may be in the interests of global economic welfare and efficiency. Since few developing countries

have adequate capital industries, a large share of present aid finances capital exports from donors to recipients. Depending on their international competitiveness, donor industries will win a share of global orders which, in the absence of tying, should reflect their market shares; tying is not essential to ensure donor benefits.

One rationale for tying is that it may help a donor to derive benefits from increased trade that are more than proportional to its share of world export markets. Two issues are salient to this use of tying as an instrument of strategic trade policy. First, it is necessary that tied aid be trade creating, ie. there is no net benefit if the export orders would have been won in the absence of aid. Second is the incidence of competitive tying between donors: donors offering a greater volume of tied aid are more likely to win a net increase in market share. Furthermore, although tying may not be trade creating relative to a base year or trend, as other donors tie their aid any individual donor must offer tied aid to protect its market share. While tying may not appear to increase market share, the absence of tying may lose market share (the relationship between tying and market share is asymmetrical). Once tying exists it is therefore self-perpetuating.

A more basic, and less competitive, rationale for tying is provided by transfer theory (Chapter 3). Aid is a balance of payments cost so that if tying generates exports it reduces the real resource cost of transfers to donors. Support for tying stems from commercial self-interest, reinforced by competitive donor tying, and the desire to purchase political leverage and goodwill. It obviously confers benefits on donors, although competitive tying may render these quite small. In fact, donor benefits are frequently over-emphasised by failure to account for the absence of net export, and output, creation. We have argued, in Chapter 9, that there is no conclusive evidence that British aid has been export creating. Furthermore, we have suggested that the industries benefiting from tied aid tend to be less competitive than average - tied aid does not appear to be a policy of 'picking winners'. Finally, while the business lobby emphasises the employment potential of aided exports, this may impose a resource burden on the economy, ie. wages are pushed up in inefficient industries supported by aid, and this will have an inflationary wage pressure on other industries thereby reducing their international competitivenes.

A final point worthy of consideration, in terms of the benefits to donors, is the displacement effect - the net impact on the donor is reduced to the extent that the demand for domestic inputs to meet aided exports displaces domestic demand that would otherwise have been realised. While it is unlikely that displacement has been significant (see Chapter 3), this does not imply that opportunity costs were negligible. We demonstrated in Chapter 9 that one's preference for a particular policy, in terms of opportunity cost, will depend on the maximand. Tied aid fares well if the specific objective is to maximise exports (although it may not be the optimal policy for such an objective - there are innumerable policy options we did not consider) but not if employment generation is the objective. An evaluation of opportunity costs requires a careful specification of the policy objectives and is discussed in the next section.

A general theme, introduced in Chapter 3 and explored in Chapters 7 to 9, has been that tied aid in general, and mixed credits in particular, may appear to be justifiable in terms of strategic trade policy. We have posited, in fact, that if mixed credits do not meet the strategic criteria they cannot be defended as export subsidies, and should not be part of the aid budget. While some of the industries benefiting from ATP appear to meet these criteria, being in relatively concentrated international markets likely to earn monopoly rents and likely to display external economies, further analysis suggests that the strategic gains are unlikely to have been realised. This is so essentially because of matching use of tying and mixed credits by all donors and rent-seeking by donor exporters. Thus, we concluded in Chapter 8 that there remained no convincing economic case for ATP, a conclusion that we believe can be generalised to all tied aid.

10.3. Areas for Further Research

Although this thesis has been about aid, attention has been largely confined to the donor perspective and commercial interests. While we consider this approach to be very important, in that it offers the key to understanding the determinants of donor aid policy, insufficient attention is consequently paid to recipient interests. In particular, while we try to explain why donors engage in tying (and argue that they are wrong to do so) we are unable to explore fully the implications this has for the

effectiveness of aid in promoting development and economic growth. We consider this omission as an inevitable result of focussing on one side of the story rather than a weakness of the thesis, and have reviewed in Chapter 2 the literature indicating that tied aid is not in the interests of LDCs. It is this observation which prompts the basic question: if tying does not benefit LDCs, can it be rationalised because of benefits to donors? We argue that claims that tying confers net economic benefits on donors are inconclusive and often misplaced, although political considerations may represent the best explanation for tying. Nevertheless, the relationship between tying and aid effectiveness is deserving of further research.

The potential net economic benefits for donors from tying depend crucially on the relationship between aid and trade. The essential question is whether the provision of tied aid establishes a trade pattern, which generates future exports independent of aid, that would not have arisen in the absence of tied aid. This issue was addressed in Chapter 9 *inter alia* but it is beyond the scope of this study to resolve it. However, our analysis has shown how to approach answering the question and this is an area for future research which follows logically from the thesis. It is clear that the commercial benefits of tying accrue to a few industries only, thus the aid-trade relationship from the donors perspective should be analysed for these industries.

The question is not easy to answer either in terms of the model or data required. The basic hypothesis to test must be whether the growth of exports to LDCs was greater for those industries benefiting from aided exports than for others. A number of problems are obvious. First, there is implicit selection bias since those trading most with LDCs are most likely to win aided exports. Second, the data requirements are heroic: the export pattern of any industry will depend on trends in the domestic industry, on the changing economy of its trading partners and on the activity of competitors from other donors, to name but a few factors. These brief observations indicate the difficulty of a general analysis and suggest that a detailed examination of a few markets may be more fruitful. This is the essence of the third area for future research we identify.

In Chapters 3 and 8 in particular, we identified the relevance of strategic trade arguments for tied aid. If tying confers a net welfare gain, globally or to the donor

only, then this should be most apparent in respect of ATP. The strategic criteria indicate the industry requirements for an export subsidy to generate a net gain in welfare. Thus, a detailed study of those industries, or better still those firms, winning ATP orders which ascertained if they meet the criteria would represent a significant contribution to the arguments surrounding tied aid. We sketched the requirements for such an analysis in Chapter 8, and our preliminary investigation suggests that the criteria are not met. If tied aid can increase donor or global welfare then ATP is a test case which warrants further study.

10.4. Conclusion: Prospects for British Aid Policy

Three major trends in British aid over the period 1978-88 have been identified, and an explanation for each offered. First, there has been a significant decrease in the real value of aid. This reflects the policy of the Thatcher Governments to restrain the growth of public expenditure, although we cannot definitely account for why aid bore a disproportionately greater share of the cuts than some other expenditure headings. It is probably true that aid is relatively easy to cut, at least insofar as the domestic political costs are relatively low. It may also be relevant that the ideology of the Thatcher Governments was generally against redistribution and the provision of social welfare by the State. Just as unemployment benefit could be claimed to discourage the unemployed from seeking work, aid could discourage LDCs from becoming economically efficient.

Second, there has been a significant reduction in the volume of tied bilateral aid and in its share of the aid budget. While this can be partly explained as an offset against the general increase in ATP, it may more generally reflect that part of the Thatcher ideology which rejects the argument for subsidising industry. The logic of this ideology is that State intervention is an undesirable distortion and that subsidies discourage firms from increasing their efficiency. Successful firms are those that are competitive on their own and if the correct free market conditions are created, in LDCs aswell as the UK, the fittest will rise to the top. It seems broadly true that the Thatcher Governments have done little to assist industry, and exporters, in general. It should be noted, however, that TBA may be easier to cut than other forms of bilateral aid precisely because it is closely linked to exports rather than development

projects and programmes. In particular, TCA and aid directed to alleviate poverty may have a political and humanitarian weight, and may involve long-term commitments, so that it is difficult for a donor to reduce their volume, although increases may be equally rare.

The third general trend has been the increasing emphasis on ATP and a tendency for the benefits of aided exports to become concentrated in a few firms. While it may appear ideologically inconsistent to reject the principle of subsidies in general yet grant them in particular cases, there is a political logic. The firms that have continued to benefit from aided exports are the insiders, large important companies which usually have identifiable links with the Conservatives. Researchers for Ann Clywd, Labour's Shadow on Overseas Development, have recently emphasised the significant donations to the Conservative Party by a number of firms prominent among the beneficiaries of ATP (*Guardian*, 18.10.90). It may not simply be a case of rewarding supporters. The Government may feel that the commercial importance of these companies warrants some support. Alternatively, it may be the case that the Government is more sympathetic to the arguments of its supporters; if these firms are deemed to be succesful, then aid support may be justified to counteract the parctice of other donors. More generally, the influence of insiders indicates the importance of examining interest group behaviour to understand policy, especially on issues that are marginal to the median voter.

The case for tying is weak. Competitive British firms can gain greater commercial benefits from MAAs than from British bilateral aid, so that tying to generate commercial benefits is not an efficient policy. Even if one confines attention to the donor, it is far from obvious that tying generates a net economic gain. Once the effect on LDCs is considered, it appears clear that tying reduces net global welfare. Furthermore, tying is at variance with the free-market and trade liberalisation arguments to which the major donors now pay lip service. Tying is not a net benefit yet it persists. It seems reasonable to ask why. Political considerations provide the most robust answers. First, internal politics will encourage a Government to appease important lobbies and reward supporters. Second, international politics will encourage a Government to match what other donors do, at least until such time as

it can encourage those other donors to mend their ways. Finally, there is the weight attached to the easily measured commercial benefits against the somewhat intangible net economic and welfare effects; it is easy for a donor to believe that it benefits from tying if it wants to believe it.

And what of the future? There is no reason to believe that the trend of British aid policy will differ significantly from that outlined in Chapter 4 if power remains in the hands of the Conservatives. It seems probable that Britain would be willing to abolish ATP if other donors, and the DAC, agreed to abolish mixed credits. Our analysis seriously questions the economic rationale of mixed credits, but a more solid refutation will be required to convince those who wish to believe that tying does benefit donors, and who tend to equate commercial with economic benefits. And what lessons for those campaigning against tying? Quite simply, that academic argument is not as influential as political lobbying.

APPENDIX A: DERIVATION OF AIDED EXPORTS DATA

The data requirement for the procedure detailed in Chapter 5 is an industry breakdown of aided exports, distinguishing between orders relating to the British bilateral aid budget (generally referring to TBA) and orders from MAAs to which the UK contributes (Multilateral), compatible with the industries in an IO matrix of the economy. Since two IO Tables were used, each with slightly different industry classifications, and the data on aided exports was insufficiently disaggregated by industry to relate directly to these IO Tables, we constructed compatible 28 industry aggregated IO matrices (GIO) for 1979 and 1984. The 28 GIO industries are defined in Table A.1 and were chosen according to the principle of not aggregating those IO industries for which data on aided exports were available at a compatible level of aggregation. Since 20 four-digit SIC industries accounted for 83% of Bilateral and 74% of Multilateral orders (May, Schumacher and Malek, 1989:99), 22 of the GIO industries were unchanged from their classification in the IO Tables, as can be seen from Table A.1, and accounted for over 90% of aided exports.[1] Having calculated the **L** for each GIO, the next step was to allocate the aided exports by industry to get **x**.

When we constructed **x** the available source of data was May, Schumacher and Malek (1986). The later publication of May, Schumacher and Malek (1989) provided limited additional information which would have facilitated our estimation procedure. In particular, our allocation as detailed in Table A.2 is based on Tables 3-1 and 3-2 of May, Schumacher and Malek (1986) which correspond to Tables 7.1 and 7.2 in May, Schumacher and Malek (1989:98-99). However, while Table 3-2 only gave the breakdown of bilateral aided exports for selected four-digit SIC industries, Table 7.2 also gives this breakdown for multilateral aided orders. Considerable effort and time would be required to re-estimate the allocation and recompute impact; the final column of Table A.2, however, indicates that the revision of the allocation of multilateral orders would have made few differences, and that these were only significant for five of the industries (cf. Table A.8).

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1 Since FSer in 1984 includes two IO1984 industries, the unchanged industries in the GIO for 1984 are, strictly speaking, only 21.

Table A.1: Industries in the Aggregate IO Matrix

No.	Industry Title	SIC	IO
1.	Mineral Oil Processing	(140)	(6, 5)
2.	Iron and Steel, Steel Products	(221/3)	(11, 10)
3.	non-Metal Mineral Products	(24)	(15-18, 14-18)
4.	Fertilisers	(251)	(21)
5.	Pharmaceuticals	(257)	(25)
6.	Metal Goods n.e.s.	(31)	(32)
7.	Industrial Plant and Steelwork	(320)	(33)
8.	Agricultural Machinery, Tractors	(321)	(34)
9.	Textile, Woodwork etc. Machonery	(323,7)	(37)
10.	Process Machinery and Contractors	(324)	(38)
11.	Mining, Construction etc. Machinery	(325)	(39)
12.	Other Machinery, Mechanical Equipment	(328)	(41)
13.	Office Machinery, Computer Equipment	(330)	(43)
14.	Insulated Wires and Cables	(341)	(44)
15.	Basic Electrical Equipment	(342)	(45)
16.	Telecommunication etc. Equipment	(344)	(47)
17.	Electronic Components, sub-Assemblies	(345)	(48)
18.	Motor Vehicles and Parts	(351,3)	(52)
19.	Shipbuilding and Repairs	(361)	(53)
20.	Other Vehicles	(362/3)	(55)
21.	Instrument Engineering	(37)	(56)
22.	Timber, paper, rubber, plastics	(46/8)	(80-86)
23.	Construction	(50)	(88)
24.	Banking, Finance and Insurance	(81/2)	(97, 98-99)
25.	Agric., utilities, metals and chemicals	(01/25)	(1/27 nes)
26.	Miscellaneous engineering and manufactures	(3)	(29/56, 87 nes)
27.	Food, drink, tobacco and clothing	(41/5)	(28 and 57-79)
28.	Miscellaneous Services	(6,7,8,9)	(89/102 nes)

NOTE: The Industry number (No.) refers to the position in the aggregate matrix. The IO column gives industry numbers in the full IO Tables; if different for the two years, 1979 (*Business Monitor*, 1983) is given first and 1984 (CSO, 1988) is second. For the miscellaneous categories (nos 25, 26 and 28), nes means industries in the range given but not included elsewhere. The IO industries are matched with Standard Industrial Classifications (SIC) from a Table in CSO (1988:7), and nes applies where relevant.

Table A.2: Estimated Aided Exports, by Industry, 1978-84

	INDUSTRY	BILATERAL		MULTILATERAL		
		£m	%	£m	%	
1.	MOP *	6.64	0.5	2.53	0.1	(0.1)
2.	I&S [1]	114.13	8.6	131.35	5.2	(5.2)
3.	nMMP *	7.96	0.6	10.10	0.4	(0.4)
4.	Frt	15.60	1.2	11.49	0.5 [2]	(0.4)~
5.	Phm	34.80	2.6	25.64	1.0 [2]	(1.0)
6.	Mtl *	9.29	0.7	27.79	1.1	(1.1)
7.	IPlt *	42.47	3.2	83.36	3.3	(3.3)
8.	AMch	15.60	1.2	107.35	4.3 [3]	(4.9)~
9.	TWMch	15.70	1.2	107.35	4.3 [3]	(2.9)~
10.	PMch *	151.29	11.4	93.46	3.7	(3.7)
11.	MCMch *	119.44	9.0	310.70	12.3	(12.4)~
12.	OMch *	74.32	5.6	159.14	6.3	(6.3)
13.	OfEq *	5.31	0.4	17.68	0.7	(0.7)
14.	IW&C	29.80	2.2	54.74	2.2 [4]	(3.4)~
15.	ElEq	116.30	8.8	213.62	8.5 [4]	(3.1)~
16.	TlEq	28.70	2.2	52.08	2.1 [4]	(4.9)~
17.	ECA	6.10	0.5	11.84	0.5 [4]	(1.2)~
18.	Mot *	107.50	8.1	118.72	4.7	(4.7)
19.	Ships	42.80	3.2	15.82	0.6 [5]	(0.6)
20.	OVch	93.89	7.1	34.70	1.4 [5]	(1.4)
21.	InstE *	15.93	1.2	171.77	6.8	(6.8)
22.	TPRP *[6]	25.21	1.9	78.31	3.1	(3.1)
23.	Const *[7]	134.04	10.1	563.30	22.3	(22.3)
24.	FSer *	27.87	2.1	75.78	3.0	(3.0)
25.	MiscP [8]	31.88	1.8	23.49	0.9	(1.7)~
26.	MiscM [9]	8.88	0.6	16.31	0.6	(1.2)~
27.	FDTC [10]	19.91	1.4	7.50	0.3	(0.2)~
28.	MiscS	0.0	0.0	0.0	0.0	(0.0)
	TOTAL	**1327.10**	100.0	**2526.00**	100.0	

SOURCE: May, Schumacher and Malek (1986); detailed notes on the next page.

NOTES TO TABLE A.2

The data are from May, Schumacher and Malek (1986). The total for Multilateral aid is that given in their Table 2-4, while the percentage distribution is derived from their Table 3-1 (T3.1 below). The figures for Bilateral aided exports are taken from T3.1 where possible (indicated by * in Table A.2), otherwise they are from their Table 3-2 (T3.2) in which a four digit SIC disaggregation is given. In a number of cases, the classification of data under multilateral aid in T3.1 encompassed more than one IO industry; lacking any better method, we allocated these exports to IO industries using the distribution revealed by data for bilateral aid (see notes 2 to 5 below). In the case of the revised estimates for multilateral, but with the exception of industries referred to in note 4 below, where Table 7.2 identified only four-digit SIC industries which make up part of a GIO industry, the share for the GIO industry in Table 7.1 was accepted; ie. it was assumed that the entire share of a two-digit SIC in Table 7.1 could be attributed to the relevant three-digit SIC/GIO industry in our Table A.2 (for example, see note 1).

1 T3.1 gives figures for SIC 22 whereas T3.2 shows that Iron and Steel (SIC 221) accounts for £101m. Assuming that the remaining £13m goes on steel products (SIC 222/3) rather than any other three-digit industries in SIC 22, all the exports under Class 22 in T3.1 are allocated to our industry No. 2, as defined in Table A.1.

2 Class 25 in T3.1 includes Frt and Phm plus a residual going to other chemicals (under MiscP); all is allocated to Frt and Phm according to the bilateral distribution given in T3.2. In respect of the revised estimates (see Table A.8 below) 1% of total aided exports is allocated to MiscP.

3 From Class 32 in T3.1, the shares of IPlt and industries Nos. 10 to 12 were determined; AMch and TWMch are assumed to share equally in the residual, for both bilateral and multilateral aid. In the revised estimates, AMch is known and the residual is allocated to TWMch and MiscM.

4 Class 34 in T3.1 includes industries Nos. 14 to 17 (the shares of each are in T3.2) plus a residual going to MiscM; the same distribution is assumed to apply to orders from multilateral agencies. In the case of the revised estimates, the multilateral shares for Nos. 14-16 were known from Table 7.2, leaving a

residual 2.4% (of total) to be allocated between ECA and MiscM (which includes industrial electrical equipment) and we allocated half to each.

5 The bilateral share of Ship is that of SIC 3610 in T3.2; the share for OVch is the total for Class 36 in T3.1 minus Ship. The same pattern is applied to multilateral.

6 The definition of TPRP (Table A.1) includes SIC 46-48 only whereas in T3.1 the corresponding figure includes Class 49, the share of which in aided exports we assume zero for convenience.

7 Virtually all the aided exports under Const are for Civil Engineering.

8 The values for MiscP are the residuals when exports for Frt and Phm are deducted from Class 25 in T3.1.

9 MiscM values are residuals when allocations to Nos. 14-16 (from T3.2) are deducted from Class 34 in T3.1.

10 Derived from T3.1 to include orders for Classes 43-45 and 'other'.

Comment on the Revisions

As is clear from the final column, where ~ denotes a GIO industry with a revised share, only a few industries were affected, and only a few of these experienced sizeable revision. Furthermore, while most of the revisions are within the ElEng industrial group the total for that group is unaffected. While the impact estimates for 1980 and 1985 discussed in Chapters 6 and 7 are based on the unrevised shares, the discussion of the importance of aided exports to particular industries (Section 7.4) is based on the revised shares. Finally, we re-estimated 1985 impact for Multilateral orders using the revised allocation and, excepting individual ElEng industries, the effect on the results was minimal. The re-estimation procedure and results are discussed in reference to Table A.8 below.

Industrial Groups

We concentrate on groups in Chapters 6 and 7. The classification used can be given in reference to Table A.1: MecEng is industries numbered 7 to 12 inclusive; ElEng is industries 14 to 17 inclusive; Vehicles is Nos. 18 to 20; Chemicals Nos. 4 and 5; I&S is No. 2 and Const is No. 23.

Allocating Aided Exports to Years

The allocations in Table A.2 are industry shares of total aided exports over the period 1978-84; May, Schumacher and Malek (1986, 1989) provide no indication of how the value of aided exports, or industry distribution, varied over each of these years. In order to distinguish 1980 and 1985, it was necessary to assume the distribution was the same in each year and then to adopt some means of determining the value of aided exports in each of those years. The means we chose, following the assumption of a one-year lag between aid and aided exports in equation (5.4), was to assume that the value of $\mathbf{x}_t$ was directly proportional to the value of $\mathbf{a}_{t-1}$. Thus, we calculate the share of aid in year t for each year over 1978-84 and assume this represents the share of x in year $t+1$ for total aided exports. The share for each year of each type of aid over 1978-84 is given in Table A.3.

Table A.3: British Tied Bilateral and Multilateral Aid, 1978-84

YEAR	BILATERAL		MULTILATERAL	
	£m	%	£m	%
1978	291.0	14.78	184.0	7.48
1979	339.0	17.22	252.0	10.25
1980	266.0	13.51	255.0	10.37
1981	347.0	17.62	346.0	14.07
1982	260.0	13.20	411.0	16.71
1983	229.0	11.63	480.0	19.52
1984	237.0	12.04	531.0	21.59
TOTAL	1969.0	100.00	2459.0	100.00

SOURCE: Values in current prices from Tables in the introduction to *British Overseas Aid Statistics* (ODA, 1982 and 1986).

Since 17.22% of TBA was allocated in 1979, we assume that 17.22% of x_τ accrued in 1980; similarly, 12.04% of x_τ was assumed to accrue in 1985. Consequently, x_τ was estimated as £224m in 1980 and £157m in 1985. Applying

the same approach to multilateral aid implies that x_μ was £259m in 1980 (10.25% of the total) and £545m in 1985 (21.59% of total). Recent data indicate that x_τ in 1980 was £233m while x_μ was £272m (May, Schumacher and Malek, 1989:66). The deviation of estimated from actual is quite small and we retain our procedure to keep the 1980 estimates on the same basis as those for 1985. Although it is reasonable to assume that x_t are proportional to a_{t-1}, the relationship may not be as direct as we assume therefore one must be wary of asserting, on the basis of our estimates, that there has been a significant change in x between 1980 and 1985.

Computing Procedures

With the exception of the revised estimates discussed in regard to Table A.8, all of the impact estimates were calculated using FORTRAN programmes on a mainframe UNIX system. Since the programmes were fairly elementary and of little interest in their own right, no sample programmes are reproduced here. Nevertheless, it is appropriate to outline the procedure. We note that we included Public Administration in **L**, although many practitioners do not, on the basis that Government is an important part of the economy and is, conceptually, inter-dependent with other industries. As the economy expands so too does tax revenue therefore there is scope for expansion in Public Administration. Furthermore, the Government provides useful services to industry not least of which, in the context of this study, is assistance in winning overseas orders and in administering and insuring exports.

We first calculated Θ, Φ, **L** and industry shares of total inputs, by type of primary input, and of total output, by type of final demand, and the shares of each component of final demand in industry output, for all industries in the full 1979 and 1984 IO Tables (a NAG subroutine was used for the matrix inversion). All of the results were printed out and selectively checked visually to ascertain that the raw data was correctly entered and that the programmes worked. Then the aggregation matrices for each year were constructed and the GIO for 1979 and 1984 calculated, following equations (5.15) to (5.17). All of the above results for the full IO Tables were calculated for the GIO and again selective visual comparisons were made to ensure that the aggregation procedure was correct. We were then confident that Φ and **L** had been correctly estimated for the GIO in both years and, as discussed

above, we also had estimates of $\mathbf{x}_\tau$ and $\mathbf{x}_\mu$ for each year. It was then relatively straightforward to estimate equations (5.11) and (5.18) for each type of aided export in each of the two years. The relevant results are reproduced in Tables A.4 to A.9 below; these Tables (printed from EXCEL Spreadsheets) are together at the end of this Appendix and are preceded by brief comments on each.

Table A.4: This gives the detailed industry breakdown of the impact of TBA in 1980; the notation used for the column headings differs from that used in the text (due to font restrictions on EXCEL). The following key is applicable, with obvious variations, to Tables A.4 to A.9.

x(A) = $x_{\tau i}$, exports due to the relevant aid type for each industry.

q(A) = $q_{\tau i}$, output due to x_τ for each industry.

q/x(A) = $q_{\tau i}/x_{\tau i}$, the effective output multiplier for each industry.

w/q(i) = W_{qi}, industry employment per unit (£1m) output.

w(A) = $w_{\tau i}$, employment due to x_τ for each industry; note the predominance of Const. which is the industry for which these estimates are least reliable.

w/x(A) = $w_{\tau i}/x_{\tau i}$, industry employment per unit (£1m) of aided exports ($w_{x\tau i}$).

q(A)/q(i) = $q_{\tau i}/q_i$, $q_{\tau i}$ as a share of industry output, in percent.

x(A)/ei = $x_{\tau i}/e_i$, aided exports as a share of industry exports, in percent.

m(A) = $q_{\tau i}*\phi_{mi}$, imported imports required to produce $q_{\tau i}$.

x-m(A) = net exports, $x_{\tau i}$ - m(A), in £m.

t(A) = $q_{\tau i}*\phi_{ti}$, taxes on intermediate inputs to produce $q_{\tau i}$.

h(A) = $q_{\tau i}*\phi_{hi}$, household income due to labour inputs to produce $q_{\tau i}$.

p(A) = $q_{\tau i}*\phi_{\pi i}$, value of profits and trading income on the production of $q_{\tau i}$.

REV(A) = t(A) + 0.25h(A) + 0.2p(A), total tax revenue attributable to $q_{\tau i}$.

Table A.5: The impact of TBA in 1985, by industry, with all variables having the same definition as for Table A.4.

Table A.6: The impact of multilateral aid in 1980. These estimates are based on the original allocation by industry of exports attributable to multilateral aid, $\mathbf{x}_\mu$, and variables are as for Table A.4 except that (M) designates $x_{\mu i}$.

Table A.7: As for Table A.6, except refering to 1985.

Table A.8: These are estimates of the impact of the revised industry allocation of $\mathbf{x}_{\mu}$ for 1985; variables have the same meaning as in Table A.4, except (R) denotes the revised allocation, and can be compared directly with the corresponding values in Table A.7. The revised estimates were calculated using the Leontief inverse as calculated from the aggregated 1985 IO matrix; this **L** was entered into an EXCEL Spreadsheet which was then used to derive the reported results.

Table A.9: This lists a variety of structural values for each industry computed from the 1984 GIO. We consider the column headings to be self-explanatory but, briefly: the first six columns give imported inputs (m), taxes (t), labour inputs (h), profits (p) and exports (e) as a share of industry output, and the change in exports' share of output over 1979-84; the next two columns give industry exports as a share of total exports (e_i/e) and the change in this share over 1979-84; the final five columns give the IO multipliers (Chapter 5, Section 5.3) for Output, imports, taxes (on intermediate inputs), household labour income and, finally, profits.

Table A.4: Detailed Impact of TBA in 1980

IO1980	x(A)	q(A)	q/x(A)	w/q(i)	w(A)	w/x(A)	q(A)/qi	x(A)/ei	m(A)	x-m(A)	t(A)	h(A)	p(A)	REV(A)
	£m	£m					%	%	£m		£m	£m	£m	£m
MOP	1.143	6.281	5.495	1.918	12.05	10.542	0.07	0.06	3.450	-2.307	0.034	0.1281	0.8234	0.2307
I&S	19.653	38.496	1.959	34.553	1330.15	67.682	0.59	1.51	4.730	14.923	0.798	9.0004	-2.7948	2.4891
nMMP	1.371	7.243	5.283	40.641	294.36	214.705	0.14	0.19	0.573	0.798	0.160	2.0324	0.8156	0.8312
Frt	2.686	3.557	1.324	16.261	57.84	21.534	0.42	2.18	0.650	2.036	0.055	0.5865	0.4631	0.2943
Phm	5.993	6.697	1.117	30.020	201.04	33.546	0.34	0.88	0.898	5.095	0.095	1.3628	1.2416	0.6840
Mtl	1.600	4.366	2.729	55.300	241.44	150.900	0.16	0.30	0.474	1.126	0.082	1.3482	0.3589	0.4908
IPlt	7.313	9.690	1.325	44.346	429.71	58.760	0.42	1.16	0.929	6.384	0.158	3.1444	0.9457	1.1333
AMch	2.686	2.789	1.038	35.320	98.51	36.675	0.25	0.39	0.318	2.368	0.035	0.5709	0.2223	0.2222
TWMch	2.703	2.968	1.098	53.075	157.53	58.280	0.27	0.44	0.307	2.396	0.053	1.0542	0.2294	0.3624
PMch	26.052	26.280	1.009	42.379	1113.72	42.750	1.77	3.24	3.013	23.039	0.514	9.2322	3.3139	3.4848
MCMch	20.568	21.916	1.066	39.633	868.60	42.231	0.80	1.83	2.180	18.388	0.327	5.9875	0.9906	2.0220
OMch	12.798	20.412	1.595	49.622	1012.88	79.144	0.44	0.86	1.935	10.863	0.360	6.8237	1.7656	2.4191
OfEq	0.914	1.171	1.281	29.051	34.02	37.221	0.09	0.10	0.205	0.709	0.019	0.2569	0.2244	0.1281
IW&C	5.131	6.489	1.265	32.132	208.51	40.637	0.68	2.95	2.025	3.106	0.095	1.5243	0.2842	0.5329
ElEq	20.027	22.971	1.147	56.744	1303.47	65.086	1.19	2.84	3.088	16.939	0.404	8.6578	0.9740	2.7632
TlEq	4.942	6.325	1.280	54.785	346.52	70.117	0.23	0.62	0.780	4.162	0.117	2.3921	0.5724	0.8295
ECA	1.050	2.681	2.553	45.573	122.18	116.362	0.19	0.19	0.447	0.603	0.045	0.9552	0.2660	0.3370
Mot	18.512	21.242	1.147	42.880	910.86	49.204	0.23	0.57	2.485	16.027	0.365	6.3747	0.8667	2.1320
Ships	7.370	8.058	1.093	70.173	565.45	76.723	0.51	2.09	1.042	6.328	-0.123	3.7977	-0.1950	0.7874
Ovch	16.168	16.456	1.018	63.837	1050.50	64.974	2.06	7.66	1.668	14.500	0.227	6.5495	0.8031	2.0250
InstE	2.743	2.935	1.070	56.694	166.40	60.664	0.21	0.41	0.367	2.376	0.057	1.0645	0.1133	0.3458
TPRP	4.341	17.697	4.077	44.279	783.61	180.514	0.09	0.20	2.857	1.484	0.344	5.0897	1.4405	1.9045
Const	23.082	32.284	1.399	48.451	1564.19	67.767	0.12	14.34	1.660	21.422	0.407	8.0097	5.6465	3.5387
Bser	4.799	11.060	2.305	90.312	998.85	208.137	0.07	0.18	0.095	4.704	0.610	6.6139	-0.0929	2.2449
MiscP	5.490	34.876	6.353	36.605	1276.64	232.539	0.07	0.06	3.446	2.044	0.127	5.9394	8.6702	3.3459
MiscM	1.529	18.354	12.004	39.625	727.28	475.657	0.11	0.04	2.858	-1.329	0.315	5.8953	0.8369	1.9562
FDTC	3.429	9.542	2.783	33.067	315.53	92.018	0.03	0.06	1.452	1.977	0.168	1.6746	0.7481	0.7363
MiscS	0.000	45.647		30.340	1384.93		0.04	0.00	1.747	-1.747	1.056	22.2529	10.2751	8.6743
TOTAL	224.093	408.483	1.823		17576.77	78.435			45.679	178.414	6.904	128.3196	39.8088	46.9457

Table A.5: Detailed Impact of TBA in 1985

B1985	x(A)	q(A)	q/x(A)	w/q(i)	w(A)	w/x(A)	q(A)/qi	x(A)/ei	m(A)	x-m(A)	t(A)	h(A)	p(A)	REV(A)
	£m	£m					%	%	£m	£m	£m	£m	£m	£m
MOP	0.799	3.005	3.761	1.005	3.02	3.78	0.02	0.02	0.914	-0.115	0.006	0.059	0.233	0.091
I&S	13.741	24.997	1.819	13.385	334.58	24.35	0.34	0.86	3.354	10.387	0.483	4.674	1.015	1.956
nMMP	0.958	4.554	4.754	23.641	107.66	112.38	0.06	0.10	0.321	0.637	0.182	1.231	0.650	0.685
Frt	1.878	2.242	1.194	7.525	16.87	8.98	0.28	3.24	0.361	1.517	0.181	0.383	0.227	0.345
Phm	4.190	4.493	1.072	16.600	74.58	17.80	0.15	0.43	0.541	3.649	0.059	1.108	1.106	0.668
Mtl	1.119	2.062	1.843	31.976	65.93	58.92	0.07	0.19	0.219	0.900	0.037	0.733	0.135	0.261
IPlt	5.113	7.977	1.560	26.371	210.36	41.14	0.26	0.96	0.828	4.285	0.115	2.853	0.465	0.968
AMch	1.878	2.410	1.283	18.620	44.87	23.89	0.20	0.25	0.269	1.609	0.031	0.546	0.202	0.228
TWMch	1.890	2.057	1.088	29.282	60.23	31.87	0.16	0.27	0.235	1.655	0.036	0.745	0.099	0.252
PMch	18.215	19.831	1.089	24.613	488.1	26.80	1.21	4.09	1.167	17.048	0.370	7.692	2.991	3.190
MCMch	14.381	16.181	1.125	23.019	372.47	25.90	0.57	1.16	1.384	12.997	0.256	5.091	0.922	1.805
OMch	8.948	14.043	1.569	28.558	410.04	45.82	0.24	0.44	1.337	7.611	0.232	4.954	0.942	1.753
OfEq	0.639	0.940	1.471	11.583	10.89	17.04	0.04	0.03	0.207	0.432	0.018	0.195	0.190	0.124
IW&C	3.588	4.232	1.179	21.915	92.74	25.85	0.36	1.64	1.022	2.566	0.061	1.092	0.467	0.474
ElEq	14.003	15.226	1.087	35.889	546.45	39.02	0.61	1.21	2.082	11.921	0.237	5.818	1.348	2.096
TIEq	3.455	4.742	1.373	28.065	133.08	38.52	0.09	0.17	0.838	2.617	0.053	1.639	0.558	0.630
ECA	0.734	1.738	2.368	18.511	32.17	43.83	0.07	0.06	0.313	0.421	0.021	0.571	0.293	0.252
Mot	12.943	14.110	1.090	18.873	266.3	20.57	0.14	0.38	2.808	10.135	0.238	4.199	0.580	1.462
Ships	5.153	5.909	1.147	35.170	207.82	40.33	0.28	1.35	0.367	4.786	0.073	2.809	0.079	0.799
Ovch	11.304	11.505	1.018	41.938	482.5	42.68	1.52	6.39	1.471	9.833	0.222	5.107	0.277	1.582
InstE	1.918	2.363	1.232	33.026	78.04	40.69	0.11	0.17	0.238	1.680	0.033	0.905	0.244	0.332
TPRP	3.035	11.283	3.718	24.102	271.94	89.60	0.04	0.10	2.035	1.000	0.184	3.657	0.804	1.340
Const	16.138	21.495	1.332	28.728	617.51	38.26	0.05	5.03	0.887	15.251	0.222	4.583	3.998	2.567
Bser	3.356	13.295	3.962	61.650	819.64	244.23	0.04	0.11	0.082	3.274	0.564	6.048	4.261	3.354
MiscP	3.838	20.959	5.461	20.301	425.49	110.86	0.03	0.02	2.743	1.095	0.358	2.695	7.730	3.351
MiscM	1.069	10.162	9.506	21.955	223.11	208.71	0.05	0.02	1.682	-0.613	0.160	3.408	0.536	1.173
FDTC	2.397	5.330	2.224	19.731	105.17	43.88	0.01	0.03	0.831	1.566	0.046	1.049	0.463	0.447
MiscS	0.000	23.833		88.440	2107.79		0.01	0.00	0.700	-0.700	0.480	11.032	5.582	4.913
TOTAL	156.680	270.974	1.729		8609.35	54.95			29.236	127.444	4.958	84.877	36.394	37.095

Table A.6: Detailed Impact of Multilateral Aid in 1980

M1980	x(M)	q(M)	q/x(M)	w/q(i)	w(M)	w/x(M)	q(M)/qi	x(M)/ei	m(M)	x-m(M)	t(M)	h(M)	p(M)	REV(M)
	£m	£m					%	%	£m	£m	£m	£m	£m	£m
MOP	0.259	5.592	21.59	1.92	10.73	41.43	0.06	0.01	3.071	-2.812	0.030	0.114	0.733	0.205
I&S	13.463	32.293	2.40	34.55	1115.82	82.88	0.49	1.03	3.968	9.495	0.670	7.550	-2.344	2.089
nMMP	1.035	11.795	11.40	40.64	479.36	463.15	0.22	0.15	0.933	0.102	0.260	3.310	1.328	1.353
Frt	1.178	1.835	1.56	16.26	29.84	25.33	0.22	0.96	0.335	0.843	0.029	0.303	0.239	0.152
Phm	2.628	2.999	1.14	30.02	90.03	34.26	0.15	0.39	0.402	2.226	0.042	0.610	0.556	0.306
Mil	2.848	5.657	1.99	55.30	312.83	109.84	0.20	0.53	0.615	2.233	0.107	1.747	0.465	0.637
IPlt	8.544	11.352	1.33	44.35	503.42	58.92	0.49	1.36	1.088	7.456	0.185	3.684	1.108	1.328
AMch	11.003	11.179	1.02	35.32	394.84	35.88	1.01	1.62	1.276	9.727	0.142	2.288	0.891	0.892
TWMch	11.003	11.476	1.04	53.08	609.09	55.36	1.03	1.79	1.187	9.816	0.206	4.076	0.887	1.402
PMch	9.580	9.824	1.03	42.38	416.33	43.46	0.66	1.19	1.126	8.454	0.192	3.451	1.239	1.303
MCMch	31.847	33.649	1.06	39.63	1333.61	41.88	1.23	2.84	3.347	28.500	0.503	9.193	1.521	3.105
OMch	16.312	25.029	1.53	49.62	1241.99	76.14	0.55	1.10	2.373	13.939	0.442	8.367	2.165	2.967
OfEq	1.812	2.091	1.15	29.05	60.75	33.53	0.16	0.20	0.366	1.446	0.033	0.459	0.401	0.228
IW&C	5.611	7.258	1.29	32.13	233.21	41.56	0.76	3.22	2.265	3.346	0.106	1.705	0.318	0.596
ElEq	21.896	24.954	1.14	56.74	1415.99	64.67	1.29	3.11	3.355	18.541	0.439	9.405	1.058	3.002
TlEq	5.338	6.820	1.28	54.79	373.63	69.99	0.25	0.67	0.841	4.497	0.127	2.579	0.617	0.895
ECA	1.214	3.302	2.72	45.57	150.48	123.95	0.24	0.21	0.550	0.664	0.055	1.177	0.328	0.415
Mot	12.169	14.736	1.21	42.88	631.88	51.93	0.16	0.37	1.724	10.445	0.253	4.422	0.601	1.479
Ships	1.622	2.125	1.31	70.17	149.12	91.94	0.14	0.46	0.275	1.347	-0.033	1.002	-0.051	0.207
Ovch	3.557	3.841	1.08	63.84	245.20	68.93	0.48	1.69	0.389	3.168	0.053	1.529	0.187	0.473
InstE	17.606	17.862	1.01	56.69	1012.67	57.52	1.28	2.66	2.236	15.370	0.345	6.479	0.689	2.103
TPRP	8.027	24.997	3.11	44.28	1106.84	137.89	0.13	0.36	4.035	3.992	0.485	7.189	2.035	2.689
Const	57.738	77.276	1.34	48.45	3744.10	64.85	0.29	35.86	3.973	53.765	0.973	19.172	13.516	8.469
Bser	7.767	13.997	1.80	90.31	1264.10	162.75	0.09	0.30	0.120	7.647	0.772	8.370	-0.118	2.841
MiscP	2.408	33.437	13.89	36.61	1223.96	508.29	0.07	0.03	3.304	-0.896	0.122	5.694	8.312	3.208
MiscM	1.672	21.631	12.94	39.63	857.13	512.64	0.13	0.04	3.369	-1.697	0.371	6.948	0.986	2.305
FDTC	0.769	6.672	8.68	33.07	220.62	286.89	0.02	0.01	1.015	-0.246	0.117	1.171	0.523	0.514
MiscS	0.000	51.945		30.34	1575.86		0.04	0.00	1.988	-1.988	1.202	25.323	11.693	9.871
TOTAL	258.906	475.624	1.84		20803.43	80.35			49.526	209.380	8.228	147.317	49.883	55.034

Table A.7: Detailed Impact of Multilateral Aid in 1985

M1985	x(M)	q(M)	q/x(M)	w/q(i)	w(M)	w/x(M)	q(M)/qi	x(M)/ei	m(M)	x-m(M)	t(M)	h(M)	p(M)	REV(M)
	£m	£m					%	%	£m	£m	£m	£m	£m	£m
MOP	0.546	7.511	13.76	1.01	7.55	13.83	0.05	0.01	2.283	-1.737	0.015	0.147	0.582	0.226
I&S	28.358	62.631	2.21	13.39	838.32	29.56	0.86	1.78	8.404	19.954	1.210	11.712	2.543	4.901
nMMP	2.181	22.529	10.33	23.64	532.61	244.20	0.30	0.23	1.587	0.594	0.898	6.090	3.215	3.385
Frt	2.481	3.194	1.29	7.53	24.03	9.69	0.40	4.28	0.514	1.967	0.258	0.546	0.323	0.491
Phm	5.536	5.949	1.07	16.60	98.75	17.84	0.20	0.57	0.716	4.820	0.078	1.467	1.465	0.884
Mul	6.000	9.505	1.58	31.98	303.93	50.66	0.31	1.02	1.008	4.992	0.171	3.381	0.621	1.202
IPlt	17.997	27.853	1.55	26.37	734.51	40.81	0.90	3.40	2.892	15.105	0.402	9.960	1.624	3.379
AMch	23.177	27.274	1.18	18.62	507.84	21.91	2.25	3.04	3.042	20.135	0.352	6.183	2.288	2.584
TWMch	23.177	24.293	1.05	29.28	711.35	30.69	1.94	3.30	2.777	20.400	0.424	8.796	1.166	2.973
PMch	20.178	23.212	1.15	24.61	571.32	28.31	1.41	4.53	1.365	18.813	0.433	9.004	3.500	3.734
MCMch	67.080	74.068	1.10	23.02	1704.97	25.42	2.60	5.41	6.333	60.747	1.173	23.302	4.222	8.265
OMch	34.358	51.859	1.51	28.56	1480.99	43.10	0.88	1.67	4.937	29.421	0.857	18.296	3.480	6.475
OfEq	3.817	4.923	1.29	11.58	57.02	14.94	0.19	0.17	1.086	2.731	0.095	1.020	0.995	0.649
IW&C	11.818	14.179	1.20	21.92	310.73	26.29	1.20	5.40	3.424	8.394	0.203	3.660	1.565	1.588
ElEq	46.121	50.239	1.09	35.89	1803.03	39.09	2.02	4.00	6.869	39.252	0.782	19.196	4.446	6.915
TlEq	11.244	15.787	1.40	28.07	443.06	39.40	0.28	0.57	2.788	8.456	0.177	5.456	1.857	2.098
ECA	2.556	5.719	2.24	18.51	105.86	41.42	0.24	0.20	1.031	1.525	0.070	1.878	0.964	0.828
Mot	25.632	28.985	1.13	18.87	547.03	21.34	0.29	0.75	5.769	19.863	0.488	8.626	1.191	3.002
Ships	3.416	4.091	1.20	35.17	143.88	42.12	0.19	0.89	0.254	3.162	0.051	1.944	0.054	0.553
Ovch	7.492	7.727	1.03	41.94	324.05	43.25	1.02	4.23	0.988	6.504	0.149	3.430	0.186	1.062
InstE	37.085	40.159	1.08	33.03	1326.29	35.76	1.90	3.35	4.042	33.043	0.566	15.381	4.144	5.655
TPRP	16.907	48.750	2.88	24.10	1174.97	69.50	0.18	0.53	8.793	8.114	0.795	15.800	3.476	5.788
Const	121.616	157.350	1.29	28.73	4520.35	37.17	0.36	37.89	6.494	115.122	1.627	33.547	29.267	18.794
Bser	16.361	55.680	3.40	61.65	3432.67	209.81	0.18	0.54	0.343	16.018	2.363	25.329	17.845	14.049
MiscP	5.071	56.508	11.14	20.30	1147.17	226.22	0.07	0.02	7.395	-2.324	-0.965	7.267	20.840	7.104
MiscM	3.521	39.318	11.17	21.96	863.23	245.17	0.18	0.05	6.506	-2.985	0.620	13.187	2.072	4.538
FDTC	1.619	9.446	5.83	19.73	186.38	115.12	0.02	0.02	1.473	0.146	0.082	1.859	0.820	0.793
MiscS	0.000	83.050		88.44	7344.94		0.04	0.00	2.440	-2.440	1.671	38.444	19.450	17.117
TOTAL	545.345	961.789	1.76		31246.85	57.30			95.553	449.792	15.045	294.908	134.203	129.033

Table A.8: Revised Impact of Multilateral Aid in 1985

RM85	x(R)	q(R)	q/x(R)	w/q(i)	w(R)	w/x(R)	m(R)	x-m(R)	REV(R)	q(R)/qi	x(R)/ei
										%	%
MOP	0.545	7.756	14.223	1.005	7.80	14.29	2.358	-1.813	0.234	0.052	0.010
I&S	28.358	61.896	2.183	13.385	828.48	29.21	8.306	20.052	4.842	0.850	1.780
nMMP	2.181	22.476	10.304	23.641	531.36	243.59	1.585	0.597	3.378	0.299	0.230
Frt	2.181	2.903	1.331	7.525	21.84	10.01	0.467	1.714	0.447	0.364	3.763
Phm	5.453	5.848	1.072	16.600	97.08	17.80	0.704	4.749	0.870	0.197	0.562
Mul	5.999	9.622	1.604	31.976	307.68	51.29	1.020	4.979	1.217	0.314	1.020
IPlt	17.996	27.406	1.523	26.371	722.72	40.16	2.845	15.152	3.324	0.886	3.400
AMch	26.722	31.273	1.170	18.620	582.31	21.79	3.487	23.235	2.963	2.580	3.505
TWMch	15.815	16.765	1.060	29.282	490.91	31.04	1.916	13.899	2.052	1.339	2.252
PMch	20.178	23.128	1.146	24.613	569.25	28.21	1.360	18.818	3.719	1.405	4.530
MCMch	67.623	74.593	1.103	23.019	1717.05	25.39	6.378	61.245	8.321	2.618	5.454
OMch	34.357	50.950	1.483	28.558	1455.03	42.35	4.850	29.506	6.360	0.865	1.670
OfEq	3.817	5.143	1.347	11.583	59.57	15.60	1.134	2.683	0.678	0.198	0.170
IW&C	18.542	20.899	1.127	21.915	458.00	24.70	5.047	13.495	2.340	1.769	8.472
ElEq	16.906	20.421	1.208	35.889	732.89	43.35	2.792	14.114	2.811	0.821	1.466
TlEq	26.722	32.318	1.209	28.065	907.00	33.94	5.707	21.015	4.294	0.573	1.355
ECA	6.544	10.354	1.582	18.511	191.66	29.29	1.867	4.677	1.499	0.434	0.512
Mot	25.631	29.117	1.136	18.873	549.52	21.44	5.794	19.837	3.014	0.291	0.750
Ships	3.272	3.947	1.206	35.170	138.83	42.43	0.245	3.027	0.533	0.183	0.853
Ovch	7.635	7.868	1.031	41.938	329.97	43.22	1.006	6.628	1.082	1.039	4.311
InstE	37.083	40.431	1.090	33.026	1335.26	36.01	4.071	33.012	5.693	1.913	3.350
TPRP	16.906	48.615	2.876	24.102	1171.73	69.31	8.770	8.135	5.771	0.180	0.530
Const	121.612	157.415	1.294	28.728	4522.21	37.19	6.501	115.111	18.795	0.360	37.889
Bser	16.360	55.581	3.397	61.650	3426.58	209.44	0.345	16.016	14.022	0.180	0.540
MiscP	9.271	61.434	6.627	20.301	1247.17	134.53	8.042	1.229	7.722	0.076	0.037
MiscM	6.544	41.689	6.370	21.955	915.27	139.86	6.899	-0.355	4.813	0.191	0.093
FDTC	1.091	9.009	8.260	19.731	177.76	162.98	1.405	-0.314	0.755	0.019	0.013
MiscS	0.000	82.290		88.440	7277.72		2.419	-2.419	16.959	0.040	
TOTAL	545.345	961.147	1.762		30772.65	56.43	97.321	448.024	128.510	0.002	0.007

Table A.9: Structural Values for the 28 IO Industries, 1985

1984	mi/qi	ti/qi	hi/qi	pi/qi	ei/qi	d(ei/qi)	ei/e	d(ei/e)	QMUL	MMUL	TMUL	LMUL	PMUL	
						79-84	IO84	79-84						
MOP	0.3040	0.0020	0.0196	0.0775	0.245	2.30	0.0415	0.50	2.019	0.449	-0.004	0.192	0.371	
I&S	0.1342	0.0193	0.1870	0.0406	0.219	2.01	0.0182	-0.66	1.964	0.237	0.030	0.442	0.220	
nMMP	0.0705	0.0399	0.2703	0.1427	0.125	-0.73	0.0107	-0.27	1.749	0.139	0.050	0.498	0.309	
Frt	0.1609	0.0809	0.1710	0.1011	0.072	-7.45	0.0007	-0.16	1.783	0.252	0.093	0.372	0.279	
Phm	0.1204	0.0132	0.2466	0.2462	0.323	-1.88	0.0111	-0.18	1.580	0.180	0.021	0.422	0.375	
Mil	0.1060	0.0180	0.3557	0.0653	0.190	-0.62	0.0067	-0.36	1.741	0.186	0.029	0.579	0.194	
IPlt	0.1038	0.0144	0.3576	0.0583	0.171	-9.88	0.0060	-0.59	1.771	0.179	0.027	0.604	0.180	
AMch	0.1115	0.0129	0.2267	0.0839	0.629	1.16	0.0087	-0.42	1.945	0.216	0.028	0.532	0.216	
TWMch	0.1143	0.0175	0.3621	0.0480	0.563	0.98	0.0080	-0.37	1.713	0.185	0.028	0.598	0.177	
PMch	0.0588	0.0186	0.3879	0.1508	0.271	-27.11	0.0051	-1.02	1.597	0.112	0.029	0.594	0.258	
MCMch	0.0855	0.0158	0.3146	0.0570	0.436	2.70	0.0141	-0.72	1.876	0.173	0.030	0.603	0.186	
OMch	0.0952	0.0165	0.3528	0.0671	0.349	2.54	0.0234	-0.48	1.756	0.173	0.029	0.602	0.187	
OfEq	0.2206	0.0193	0.2072	0.2022	0.900	20.65	0.0261	0.86	1.520	0.287	0.028	0.378	0.302	
IW&C	0.2415	0.0143	0.2581	0.1104	0.186	0.40	0.0025	-0.08	1.593	0.308	0.019	0.419	0.247	
ElEq	0.1367	0.0156	0.3821	0.0885	0.463	9.80	0.0131	-0.03	1.608	0.203	0.025	0.581	0.191	
TlEq	0.1766	0.0112	0.3456	0.1176	0.359	6.90	0.0227	0.75	1.524	0.237	0.020	0.529	0.211	
ECA	0.1803	0.0122	0.3283	0.1685	0.531	12.07	0.0143	0.35	1.474	0.231	0.019	0.482	0.265	
Mot	0.1990	0.0168	0.2976	0.0411	0.345	-0.48	0.0390	-2.30	1.722	0.283	0.028	0.526	0.157	
Ships	0.0621	0.0123	0.4753	0.0133	0.182	-4.21	0.0044	-0.23	1.717	0.133	0.022	0.721	0.114	
Ovch	0.1279	0.0193	0.4439	0.0241	0.233	-3.09	0.0020	-0.20	1.618	0.192	0.029	0.648	0.126	
InstE	0.1007	0.0141	0.3830	0.1032	0.522	4.99	0.0126	0.00	1.625	0.168	0.024	0.596	0.208	
TPRP	0.1804	0.0163	0.3241	0.0713	0.118	0.33	0.0362	-0.60	1.627	0.252	0.024	0.522	0.191	
Const	0.0413	0.0103	0.2132	0.1860	0.007	0.14	0.0037	0.06	1.937	0.112	0.028	0.488	0.366	
Bser	0.0062	0.0424	0.4549	0.3205	0.095	-7.85	0.0344	-1.53	1.260	0.025	0.048	0.547	0.378	
MiscP	0.1309	-0.0171	0.1286	0.3688	0.301	10.37	0.2719	9.20	1.644	0.217	-0.015	0.272	0.517	
MiscM	0.1655	0.0158	0.3354	0.0527	0.319	8.19	0.0775	0.31	1.685	0.241	0.025	0.547	0.174	
FDTC	0.1559	0.0086	0.1968	0.0868	0.151	-0.36	0.0792	-2.86	1.921	0.267	0.013	0.423	0.292	
MiscS	0.0294	0.0201	0.4629	0.2342	0.084	-0.29	0.2062	1.05	1.385	0.065	0.026	0.592	0.314	

APPENDIX B: MEASURING EXPORTS DUE TO ATP

Table 8.1 in the text lists the industries receiving ATP over the period 1978-90; Table B.1 provides the SIC and IO classifications of these industries. The impact analysis reported here and in Chapter 8 was based on **L** calculated for 1979 and 1984 for a GIO of the 18 industries in Table B.1, following the procedure in Appendix A. The data on ATP awards from 1978 to 1986 are from Foreign Affairs Committee (FAC, 1987) and data for 1987-90 were provided by the ODA. Table B.2 lists the value of exports supported by ATP (x_α), by industry, for each year over 1978-86 and Table B.3 provides corresponding figures for 1987/8 to 1989/90. Basic structural data for the IO industries can be found in Appendix A.

The ATP awards were classified by industry by relating the project description in FAC (1987) to the SIC description of industries (CSO, 1979: *Standard Industrial Classification, Revised 1980*, London: HMSO). There were two stages in deriving x_α from awards data; deducting local costs and allocating projects to industries. Because ATP is requested by companies who have targeted potential exports, impact is assumed to occur in the year the contract is agreed (despite the fact that many are long-term construction projects). Estimates of this (potential) impact for 1979 and 1983 are presented in Tables B.4 and B.5.

Deductions for Local Costs

The x_α are of essentially two types, those where a finished good is exported from the UK directly, and those where the funded activity takes place overseas (though usually requiring UK goods). In both case the contract value overstates x_α because some of the contract will be spent overseas and such monies, which can generally be deemed local costs (including sub-contracting to third, ie. non-local, non-UK, parties), do not impact on the UK. The deduction for local costs varied from a minimum of 10 per cent, for direct exports and technical co-operation, to a maximum of 40 per cent for low technology, labour intensive, projects.

The ten per cent minimum may appear to overstate local costs on direct exports, of vehicles for example, or training, which often takes place in the UK, but allows for

import taxes, transport charges and contract expenses. In the case of consultancy, which largely takes place in the LDC, or the export of equipment for assembly overseas, the minimum may appear too small. There were two types of project for which larger deductions were made (based on comments by representatives of firms which have won ATP contracts). First, 25 per cent was deducted in the case of large capital projects which involve high technology but also require a high labour input, such as the construction of power or process plant. Second, 40 per cent was deducted for large-scale, low technology and labour-intensive projects such as roads and irrigation.

A direct consequence of deducting local costs was to substantially reduce the implied commercial benefits of large projects. For example, Biwater's major rural water supply scheme in Malaysia had a contract value of £194m, with 1986 ATP of £59.5m, or thirty per cent, whereas the estimated export value was £116.5m reducing the export ratio to about two rather than above three. We largely avoid this problem by using the x_α to estimate impact only; when considering the importance of ATP to companies, and its allocation to recipients, we refer to the contract value.

Allocation to Industries

The majority of the ATP projects are easily linked to the exporting industry since the data give a project description which identifies the commodity (which is the IO basis of definition of the export industry we use). There were slight difficulties for consultancy, training or feasibility contracts. First, if the company winning the contract is clearly part of an industry other than consultancy, the x_α were allocated to the industry, eg. if GEC win an electrification feasibility study, it is allocated to ElEq. Second, if the award is for consultancy the allocation is to BSer, which includes consulting engineers, architects, etc. Finally, awards to an Institute, professional or Government organisation were allocated to RSer.

Allocation difficulties arose for some of the largest, usually construction, projects which were shared between two, or more, industries. Generally, after deducting local costs, 75 per cent was allocated to the principal contractor industry (frequently ElEq for power generation or transmission) and 25 per cent to the major supply

industry for equipment sub-contracting (most frequently IPlt which includes the manufacture of metal structures for industrial, power and civil engineering projects).

Table B.1: ATP-Recipient Industries 1978-90

No.	Industry Title	SIC	IO
1	Industrial Plant and Steelwork (IPlt)	(320)	(33)
2	Textile, Woodwork etc. Machinery (TWMch)	(323,7)	(37)
3	Process Machinery and Contractors (PMch)	(324)	(38)
4	Mining, Construction etc. Machinery (MCMch)	(325)	(39)
5	Other Machinery, Mechanical Equipment (OMch)	(328)	(41)
6	Insulated Wires and Cables (IW&C)	(341)	(44)
7	Basic Electrical Equipment (ElEq)	(342)	(45)
8	Telecommunications Equipment (TlEq)	(344)	(47)
9	Motor Vehicles and Parts (Mot)	(351,3)	(52)
10	Shipbuilding and Repairing (Ships)	(3610)	(53)
11	Aerospace (Aero)	(364)	(54)
12	Other Vehicles (OVch)	(362/3)	(55)
13	Construction (Const)	(50)	(88)
14	Business Services (BSer)	(8)	(100)*
15	Research Services (RSer)	(940)	(101)*
16	Other Engineering (OEng)	(3)	(29-56)
17	Other Production (OPrd)	(01-45)	(1-28; 57-87)
18	Other Services (OSer)	(6-9)	(89-102 nes)*

NOTES: Industry titles and IO numbers are those in the 1984 IO Tables for the UK (CSO, 1988) which correspond to the same industries in the 1979 Tables (Business Monitor, 1983) except for:

* IO 100 in 1984 IO Tables was included with Banking and Financial Services in 1979 (IO 97); IO 101 in 1984 was IO 99 in 1979. The aggregates Nos. 16 to 18 cover all IO industries not receiving ATP orders; the numbers in parenthesis refer to the section of the IO Table covered but excludes any ATP-recipient industries within the stated range.

Table B.2: Estimated ATP-supported Exports, 1978-86

INDUSTRY	1978 £m	1979 £m	1980 £m	1981 £m	1982 £m
1. IPlt	-	13.613	1.611	14.885	227.976
2. TWMch	-	-	5.294	5.958	-
3. PMch	-	-	-	0.169	-
4. MCMch	-	25.938	-	0.017	11.250
5. OMch	0.050	-	6.615	28.969	-
6. IW&C	-	20.700	-	-	-
7. ElEq	-	26.775	39.026	18.207	234.928
8. TlEq	-	2.700	-	2.535	-
9. Mot	1.584	-	0.864	-	3.801
10. Ships	-	16.200	24.300	-	12.186
11. Aero	3.150	2.700	4.856	-	-
12. OVch	27.360	2.788	7.157	-	21.330
13. Const	-	-	-	0.504	0.180
14. BSer	-	-	0.399	3.807	-
15. RSer	-	-	-	-	-
TOTAL	**32.144**	**111.414**	**90.122**	**75.051**	**511.651**

INDUSTRY	1983 £m	1984 £m	1985 £m	1986 £m	1978-86 £m
1. IPlt	18.606	26.951	9.382	22.128	335.16
2. TWMch	-	-	-	-	11.25
3. PMch	0.181	0.918	0.953	31.569	33.82
4. MCMch	55.833	3.098	28.759	58.335	183.23
5. OMch	4.500	-	23.076	1.031	64.24
6. IW&C	-	93.600	-	-	114.30
7. ElEq	14.975	90.436	0.073	56.462	480.88
8. TlEq	-	0.960	0.200	0.047	6.44
9. Mot	-	-	-	-	6.25
10. Ships	-	-	1.940	-	58.63
11. Aero	-	-	9.303	-	20.01
12. OVch	-	-	-	6.375	65.01
13. Const	-	-	0.400	39.554	40.64
14. BSer	2.287	3.608	1.080	1.090	12.27
15. RSer	0.054	0.039	-	0.068	0.16
TOTAL	**96.436**	**219.610**	**75.166**	**216.659**	**1428.25**

Table B.3: ATP Awards by Industry, 1987 to 1990

	87/8			88/9			89/90			87-90		
	ATP	k (A)	X (A)	ATP	k (A)	X (A)	ATP	k (A)	X (A)	ATP	k (A)	X (A)
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
IPlt	13.91	32.59	25.93	26.58	87.06	65.61	7.76	22.18	16.63	48.252	141.826	108.175
TWMch	0.04	0.04	0.04	5.17	18.23	13.67	0.34	1.12	1.01	5.547	19.384	14.711
PMch	0	0	0	4.79	15.90	11.93	6.63	18.94	14.21	11.414	34.840	26.130
MCMch	5.66	12.47	10.70	0	0	0	0	0	0	5.659	12.467	10.700
OMch	9.42	37.42	28.07	50.94	149.90	113.46	17.12	46.69	35.02	77.480	234.007	176.538
IW&C	5.26	20.95	15.71	5.24	13.09	9.82	0	0	0	10.501	34.038	25.529
ElEq	6.22	21.40	16.82	8.88	28.02	21.46	13.44	38.40	28.80	28.534	87.824	67.081
TlEq	9.50	26.48	19.93	22.33	48.64	39.68	12.38	28.34	23.70	44.207	103.456	83.307
Mot	0	0	0	2.68	8.89	8.01	0	0	0	2.677	8.894	8.005
Ships	6.67	22.15	19.94	7.01	9.91	8.92	0	0	0	13.676	32.056	28.850
Aero	0	0	0	0	0	0	0	0	0	0	0	0
Ovch	0	0	0	4.49	12.78	11.51	6.87	19.58	17.63	11.359	32.368	29.132
Const	0	0	0	14.79	20.99	15.81	62.47	68.02	51.01	77.263	89.009	66.820
Bser	7.36	7.36	6.63	1.52	3.40	3.06	0.82	1.17	1.06	9.692	11.934	10.741
RSer	1.10	1.10	0.99	0	0	0	0.10	0.10	0.09	1.196	1.196	1.076
OEng	0	0	0	1.92	3.84	3.46	0.12	0.41	0.37	2.047	4.250	3.825
SUM	65.13	181.96	144.74	156.33	420.65	326.37	128.05	244.94	189.51	349.504	847.549	660.620

Table B.4: The Potential Impact of ATP in 1979

	Industry	x_α £m	q_α £m	W_q	w_α	$q_{\alpha i}/q_i$ %
1.	IPlt	13.613	15.596	44.35	691.6	0.67
2.	TWMch	0.0	0.101	53.15	5.3	0.01
3.	PMch	0.0	0.114	42.38	4.8	0.01
4.	MCMch	25.938	26.927	39.63	1067.2	0.98
5.	OMch	0.0	5.434	49.62	269.6	0.12
6.	IW&C	20.700	21.879	32.13	703.0	2.28
7.	ElEq	26.775	28.733	56.74	1630.4	1.49
8.	TIEq	2.700	3.726	54.79	204.1	0.14
9.	Mot	0.0	0.837	42.88	35.9	0.01
10.	Ships	16.200	17.029	70.17	1194.9	1.09
11.	Aero	2.700	3.066	42.65	130.7	0.10
12.	OVch	2.788	2.994	63.66	190.6	0.38
13.	Const	0.0	1.244	48.45	60.3	0.01
14.	BSer	0.0	2.583	68.61	177.2	0.02
15.	RSer	0.0	4.734	153.52	726.8	0.03
16.	OEng	0.0	10.760	49.00	527.2	0.06
17.	OPrd	0.0	33.945	36.60	1242.4	0.03
18.	OSer	0.0	16.459	147.94	2435.0	0.02
TOTAL		111.414	196.159		11297.3	

	Industry	x_α £m	x_α/e_i %	m_α £m	x_α-m_α £m	$\phi_{t\alpha}$ £m
1.	IPlt	13.613	2.17	1.495	12.118	0.255
2.	TWMch	0.0	-	0.010	-0.010	0.002
3.	PMch	0.0	-	0.013	-0.013	0.002
4.	MCMch	25.938	2.31	2.678	23.260	0.402
5.	OMch	0.0	-	0.515	-0.515	0.096
6.	IW&C	20.700	11.90	6.829	13.872	0.320
7.	ElEq	26.775	3.80	3.863	22.912	0.505
8.	TIEq	2.700	0.34	0.459	2.241	0.069
9.	Mot	0.0	-	0.098	-0.098	0.014
10.	Ships	16.200	4.60	2.202	13.998	-0.260
11.	Aero	2.700	0.22	0.703	1.997	0.046
12.	OVch	2.788	1.32	0.304	2.485	0.041
13.	Const	0.0	-	0.064	-0.064	0.016
14.	BSer	0.0	-	0.022	-0.022	0.143
15.	RSer	0.0	-	0.018	-0.018	0.170
16.	OEng	0.0	-	1.227	-1.227	0.188
17.	OPrd	0.0	-	5.396	-5.396	0.412
18.	OSer	0.0	-	0.709	-0.709	0.352
TOTAL		111.414		26.604	84.810	2.772

Table B.5: Potential Impact of ATP in 1983

Industry		x_α £m	q_α £m	W_q	w_α	$q_{\alpha i}/q_i$ %
1.	IPlt	18.606	23.662	28.76	680.5	0.76
2.	TWMch	0.0	0.047	32.40	1.5	0.00
3.	PMch	0.181	0.420	27.72	11.7	0.03
4.	MCMch	55.833	60.151	27.04	1626.5	2.11
5.	OMch	4.500	9.974	32.06	319.8	0.17
6.	IW&C	0.0	0.451	23.97	10.8	0.04
7.	ElEq	14.975	16.152	38.37	619.8	0.65
8.	TlEq	0.0	0.777	30.12	23.4	0.01
9.	Mot	0.0	0.936	22.38	20.9	0.01
10.	Ships	0.0	0.016	42.74	0.7	0.00
11.	Aero	0.0	0.003	29.30	0.1	0.00
12.	OVch	0.0	0.072	48.35	3.5	0.01
13.	Const	0.0	0.925	32.80	30.4	0.00
14.	BSer	2.287	8.805	49.54	436.2	0.03
15.	RSer	0.054	0.626	107.97	67.6	0.00
16.	OEng	0.0	10.147	29.52	299.5	0.04
18.	OPrd	0.0	25.752	22.57	581.1	0.01
19.	OSer	0.0	18.282	100.46	1836.7	0.01
TOTAL		96.436	177.199		6570.5	

Industry		x_α £m	x_α/e_i %	m_α £m	x_α-m_α £m	$\phi_{t\alpha}$ £m
1.	IPlt	18.606	3.51	2.456	16.150	0.341
2.	TWMch	0.0	-	0.005	-0.005	0.001
3.	PMch	0.181	0.04	0.025	0.156	0.008
4.	MCMch	55.833	4.50	5.143	50.690	0.952
5.	OMch	4.500	0.22	0.950	3.551	0.165
6.	IW&C	0.0	-	0.109	-0.109	0.007
7.	ElEq	14.975	1.30	2.208	12.767	0.252
8.	TlEq	0.0	-	0.137	-0.137	0.009
9.	Mot	0.0	-	0.186	-0.186	0.016
10.	Ships	0.0	-	0.001	-0.001	0.000
11.	Aero	0.0	-	0.001	-0.001	0.000
12.	OVch	0.0	-	0.009	-0.009	0.001
13.	Const	0.0	-	0.038	-0.038	0.010
14.	BSer	2.287	0.08	0.054	2.233	0.374
15.	RSer	0.054	0.01	0.006	0.049	0.022
16.	OEng	0.0	-	1.341	-1.341	0.169
17.	OPrd	0.0	-	4.017	-4.017	0.013
18.	OSer	0.0	-	0.564	-0.564	0.348
TOTAL		96.436		17.251	79.185	2.686

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